



# **STIC Search Report**

**EIC 1700**

**STIC Database Tracking Number: 159671**

**TO: Elizabeth Wood**

**Location: 9D15**

**Art Unit : 1755**

**August 2, 2005**

**Case Serial Number: 10/600123**

**From: Usha Shrestha**

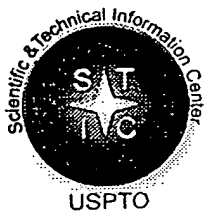
**Location: EIC 1700**

**REMSEN 4B28**

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## **Search Notes**



# STIC Search Results Feedback Form

**EIC17000**

Questions about the scope or the results of the search? Contact *the EIC searcher or contact:*

Kathleen Fuller, EIC 1700 Team Leader  
571/272-2505 REMSEN 4B28

## Voluntary Results Feedback Form

- I am an examiner in Workgroup:  Example: 1713  
➤ Relevant prior art **found**, search results used as follows:

- ☐ 102 rejection
- ☐ 103 rejection
- ☐ Cited as being of interest.
- ☐ Helped examiner better understand the invention.
- ☐ Helped examiner better understand the state of the art in their technology.

*Types of relevant prior art found:*

- ☐ Foreign Patent(s)
- ☐ Non-Patent Literature  
(journal articles, conference proceedings, new product announcements etc.)

➤ Relevant prior art **not found**:

- ☐ Results verified the lack of relevant prior art (helped determine patentability).
- ☐ Results were not useful in determining patentability or understanding the invention.

**Comments:**

Drop off or send completed forms to EIC1700 REMSEN 4B28



## Smith, Teresa (ASRC)

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**From:** Unknown@Unknown.com  
**Sent:** Monday, July 18, 2005 2:17 PM  
**To:** STIC-EIC1700  
**Subject:** Generic form response

ResponseHeader=Commercial Database Search Request

AccessDB#= 159671

LogNumber= \_\_\_\_\_

Searcher= \_\_\_\_\_

SearcherPhone= \_\_\_\_\_

SearcherBranch= \_\_\_\_\_

MyDate=Mon Jul 18 14:15:59 EDT 2005

submitto=STIC-EIC1700@uspto.gov

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Artunit=1755

Office=REM 9 D 15

Serialnum=10/600,123

PatClass=502/214

Earliest=6/20/03

Format1=paper

Searchtopic=I would like to know if the formula for "catalytic activity index" as set forth in claim 1 can be located. Thanks.

Comments=

send=SEND

**ABSTRACT OF THE INVENTION**

The invention is directed to methods for protecting metalloaluminophosphate molecular sieves, particularly silicoaluminophosphate (SAPO) molecular sieves, from loss of catalytic activity due to contact with a gas containing water. The methods of the invention provide procedures that enable activated sieve to contact water vapor, within a certain range of time, temperature, and water partial pressure conditions, before the sieve becomes substantially deactivated.

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### Claims:

This listing of claims will replace the listing of the claims in the application.

### Listing of Claims:

1. (Original) A method of protecting activated metalloaluminophosphate molecular sieve from loss of catalytic activity, comprising contacting the activated metalloaluminophosphate molecular sieve with a gas containing water at a temperature and water partial pressure effective to maintain a predetermined catalytic activity index, wherein the catalytic activity index is represented by the formula:

$$CAI = \exp(f(T) * f(PP_{\text{water}})^n * \alpha * t)$$

wherein

t = time of contact of catalyst with water (hours)

T = temperature at contact (°C)

PP<sub>water</sub> = Partial Pressure of water in contact gas (psia)

alpha = -0.071

n = 3.5

$f(T) = \exp(ea(1/(T + 273) - 1/(T_0 + 273)))$

ea = -5500°K

T<sub>0</sub> = 200°C

$f(PP_{\text{water}}) = (26.2 * PP_{\text{water}}/P_{\text{sat}} + 1.14) * 0.175,$  for T ≥ 180°C (453°K)

$f(PP_{\text{water}}) = ((26.2 + 0.272 * (180 - T)) * PP_{\text{water}}/P_{\text{sat}} + 1.14) * 0.175,$

for 180°C (453°K) > T ≥ 150°C (433°K)

P<sub>sat</sub> = Saturation pressure of water at T (psia).

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2. (Original) The method of claim 1, wherein the activated metalloaluminophosphate molecular sieve is contacted with the gas at a temperature and water partial pressure effective to maintain a catalytic activity index of at least 0.7.
3. (Original) The method of claim 2, wherein the activated metalloaluminophosphate molecular sieve is contacted with the gas at a temperature and water partial pressure effective to maintain a catalytic activity index of at least 0.8.
4. (Original) The method of claim 3, wherein the activated metalloaluminophosphate molecular sieve is contacted with the gas at a temperature and water partial pressure effective to maintain a catalytic activity index of at least 0.9.
5. (Original) The method of claim 1, wherein the gas has a relative water pressure of at least 0.0001 and contacts the activated molecular sieve at a temperature less than water critical temperature.
6. (Original) The method of claim 5, wherein the gas has a relative water pressure of at least 0.001.
7. (Original) The method of claim 6, wherein the gas has a relative water pressure of at least 0.01.
8. (Original) The method of claim 7, wherein the gas has a relative water pressure of at least 0.1.
9. (Original) The method of claim 1, wherein the gas contacts the activated molecular sieve at a temperature of from 150°C to 300°C.

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10. (Original) The method of claim 1, wherein the activated metalloaluminophosphate molecular sieve is contacted with the gas for not greater than 500 hours.
11. (Original) The method of claim 10, wherein the activated metalloaluminophosphate molecular sieve is contacted with the gas from 0.01 hour to 50 hours.
12. (Original) The method of claim 1, wherein the activated metalloaluminophosphate molecular sieve is a silicoaluminophosphate molecular sieve.
13. (Original) The method of claim 1, further comprising stopping contact of the activated metalloaluminophosphate molecular sieve with the gas and storing in an anhydrous environment.
14. (Withdrawn) The method of claim 1, further comprising stopping contact of the activated metalloaluminophosphate molecular sieve with the gas and contacting with an oxygenate to form an olefin product.
15. (Original) The method of claim 1, wherein the catalytic activity is catalytic activity in reaction processes selected from the group consisting of catalytic cracking, hydrocracking, dewaxing, olefin forming reactions, aromatics forming reactions, paraffin isomerization, olefin isomerization, paraffin hydroisomerization, olefin hydroisomerization, olefin oligomerization, olefin polymerization, reforming, alkylation, and disproportionation of aromatics.
16. (Original) The method of claim 1, wherein the activated molecular sieve is contacted so as to maintain an ethylene or propylene selectivity of at least 25 wt %.

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17. (Original) A method of protecting catalytic activity of an activated metalloaluminophosphate molecular sieve in olefin forming reactions due to contact with water vapor, comprising contacting the activated metalloaluminophosphate molecular sieve with a gas for a time effective to maintain the activated metalloaluminophosphate molecular sieve at a catalytic activity index of at least 0.7 and at an ethylene or propylene selectivity of at least 25 wt %, wherein the gas is at a relative water pressure of from 0.0001 to 1.
18. (Original) The method of claim 17, wherein the gas contacts the activated molecular sieve at a temperature less than water critical temperature.
19. (Original) The method of claim 18, wherein the activated metalloaluminophosphate molecular sieve is contacted with the gas for a time effective to maintain a catalytic activity index of at least 0.8.
20. (Original) The method of claim 19, wherein the activated metalloaluminophosphate molecular sieve is contacted with the gas for a time effective to maintain a catalytic activity index of at least 0.9.
21. (Original) The method of claim 17, wherein the gas has a relative water pressure of at least 0.001.
22. (Original) The method of claim 21, wherein the gas has a relative water pressure of at least 0.01.
23. (Original) The method of claim 22, wherein the gas has a relative water pressure of at least 0.1.

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24. (Original) The method of claim 17, wherein the gas contacts the activated molecular sieve at a temperature of from 150°C to 300°C.
25. (Original) The method of claim 24, wherein the activated metalloaluminophosphate molecular sieve is contacted with the gas for not greater than 500 hours.
26. (Original) The method of claim 25, wherein the activated metalloaluminophosphate molecular sieve is contacted with the gas from 0.01 hour to 50 hours.
27. (Original) The method of claim 17, wherein the activated metalloaluminophosphate molecular sieve is a silicoaluminophosphate molecular sieve.
28. (Original) The method of claim 17, further comprising stopping contact of the activated metalloaluminophosphate molecular sieve with the gas and storing in an anhydrous environment.
29. (Withdrawn) The method of claim 17, further comprising stopping contact of the activated metalloaluminophosphate molecular sieve with the gas and contacting with an oxygenate to form an olefin product.
30. (Withdrawn) A process for forming olefin product from oxygenate feed, the process comprising the steps of:
  - a) contacting an activated metalloaluminophosphate molecular sieve with a gas containing water at conditions effective to maintain the activated sieve at a catalytic activity index of at least 0.7 and an ethylene or propylene selectivity of at least 25 wt %; and

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- b) contacting the water-contacted sieve with an oxygenate feed to form an olefin product, wherein the olefin product contains greater than 50 weight percent olefin, based on total weight of hydrocarbon produced.
31. (Withdrawn) The process of claim 30, wherein the activated metalloaluminophosphate molecular sieve is contacted with the gas for a time effective to maintain a catalytic activity index of at least 0.8.
32. (Withdrawn) The process of claim 31, wherein the activated metalloaluminophosphate molecular sieve is contacted with the gas for a time effective to maintain a catalytic activity index of at least 0.9.
33. (Withdrawn) The process of claim 30, wherein the gas has a relative water pressure of at least 0.0001.
34. (Withdrawn) The process of claim 33, wherein the gas has a relative water pressure of at least 0.001.
35. (Withdrawn) The process of claim 34, wherein the gas has a relative water pressure of at least 0.01.
36. (Withdrawn) The process of claim 35, wherein the gas has a relative water pressure of at least 0.1.
37. (Withdrawn) The process of claim 30, wherein the gas contacts the activated molecular sieve at at a temperature of from 150°C to 300°C.

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38. (Withdrawn) The process of claim 30, wherein the activated metalloaluminophosphate molecular sieve is contacted with the gas for not greater than 500 hours.
39. (Withdrawn) The process of claim 38, wherein the activated metalloaluminophosphate molecular sieve is contacted with the gas from 0.01 hour to 50 hours.
40. (Withdrawn) The process of claim 30, wherein the activated metalloaluminophosphate molecular sieve is a silicoaluminophosphate molecular sieve.
41. (Withdrawn) The process of claim 30, further comprising polymerizing olefin in the olefin product, in the presence of a polymerization catalyst system in a polymerization reactor, to produce one or more polymer products.
42. (Withdrawn) A process for converting oxygenate to an olefin product, the process comprising the steps of:
- a) loading an activated metalloaluminophosphate molecular sieve into a reaction system;
  - b) contacting the activated metalloaluminophosphate molecular sieve loaded into the reaction system with a gas containing water at conditions effective to maintain the activated sieve at an ethylene or propylene selectivity effective to convert an oxygenate feed to an olefin product, wherein the olefin product contains greater than 50 weight percent olefin, based on total weight of hydrocarbon produced; and
  - c) contacting the water-contacted sieve with an oxygenate feed to form the olefin product.
43. (Withdrawn) The process of claim 42, wherein the activated metalloaluminophosphate molecular sieve is contacted with the gas for a time effective to maintain a catalytic activity index of at least 0.7.

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44. (Withdrawn) The process of claim 43, wherein the activated metalloaluminophosphate molecular sieve is contacted with the gas for a time effective to maintain a catalytic activity index of at least 0.8.
45. (Withdrawn) The process of claim 44, wherein the activated metalloaluminophosphate molecular sieve is contacted with the gas for a time effective to maintain a catalytic activity index of at least 0.9.
46. (Withdrawn) The process of claim 45, wherein the gas has a relative water pressure of at least 0.0001.
47. (Withdrawn) The process of claim 46, wherein the gas has a relative water pressure of at least 0.001.
48. (Withdrawn) The process of claim 47, wherein the gas has a relative water pressure of at least 0.01.
49. (Withdrawn) The process of claim 48, wherein the gas has a relative water pressure of at least 0.1.
50. (Withdrawn) The process of claim 42, wherein the gas contacts the activated molecular sieve at a temperature of from 150°C to 300°C.
51. (Withdrawn) The process of claim 42, wherein the activated metalloaluminophosphate molecular sieve is contacted with the gas for not greater than 500 hours.

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52. (Withdrawn) The process of claim 51, wherein the activated metalloaluminophosphate molecular sieve is contacted with the gas from 0.01 hour to 50 hours.
53. (Withdrawn) The process of claim 42, wherein the activated metalloaluminophosphate molecular sieve is a silicoaluminophosphate molecular sieve.
54. (Withdrawn) The process of claim 40, further comprising polymerizing olefin in the olefin product, in the presence of a polymerization catalyst system in a polymerization reactor, to produce one or more polymer products.
55. (Original) A method of activating metalloaluminophosphate molecular sieve, the method comprising the steps of:
- a) providing a metalloaluminophosphate molecular sieve containing template;
  - b) calcining the metalloaluminophosphate molecular sieve in a calcination unit to remove the template;
  - c) sweeping gas through the calcination unit to cool the calcined metalloaluminophosphate molecular sieve, while maintaining the calcined metalloaluminophosphate molecular sieve at a catalytic activity index of at least 0.7, wherein the gas has a relative water pressure of at least 0.0001 and contacts the activated molecular sieve at a temperature less than water critical temperature.
56. (Original) The method of claim 55, wherein the activated metalloaluminophosphate molecular sieve is maintained at a catalytic activity index of at least 0.8.
57. (Original) The method of claim 56, wherein the activated metalloaluminophosphate molecular sieve is maintained at a catalytic activity index of at least 0.9.

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58. (Original) The method of claim 55, wherein the gas has a relative water pressure of at least 0.001.
59. (Original) The method of claim 58, wherein the gas has a relative water pressure of at least 0.01.
60. (Original) The method of claim 59, wherein the gas has a relative water pressure of at least 0.1.
61. (Original) The method of claim 55, wherein the gas is at a temperature of from 150°C to 300°C.
62. (Original) The method of claim 55, wherein the gas is swept through the calcination unit for not greater than 500 hours.
63. (Original) The method of claim 62, wherein the gas is swept through the calcination unit from 0.01 hour to 50 hours.
64. (Original) The method of claim 55, wherein the activated metalloaluminophosphate molecular sieve is a silicoaluminophosphate molecular sieve.
65. (Original) The method of claim 55, further comprising removing the activated metalloaluminophosphate molecular sieve from the calcination unit and storing the removed molecular sieve in an anhydrous environment.
66. (Withdrawn) The method of claim 55, further comprising removing the activated metalloaluminophosphate molecular sieve from the calcination unit and contacting the removed molecular sieve with an oxygenate to form an olefin product.

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67. (Withdrawn) The method of claim 66, further comprising polymerizing olefin in the olefin product, in the presence of a polymerization catalyst system in a polymerization reactor, to produce one or more polymer products.
68. (Original) The method of claim 55, wherein the catalytic activity is catalytic activity in reaction processes selected from the group consisting of catalytic cracking, hydrocracking, dewaxing, olefin forming reactions, aromatics forming reactions, paraffin isomerization, olefin isomerization, paraffin hydroisomerization, olefin hydroisomerization, olefin oligomerization, olefin polymerization, reforming, alkylation, and disproportionation of aromatics.
69. (Original) The method of claim 55, wherein the activated molecular sieve is contacted with the gas so as to maintain an ethylene or propylene selectivity of at least 25 wt %.
70. (Withdrawn) A method of starting-up an olefin forming reaction system, comprising the steps of:
- a) sweeping gas through the reaction system to heat up the system, wherein the reaction system contains activated metalloaluminophosphate molecular sieve and the activated metalloaluminophosphate molecular sieve is maintained at a catalytic activity index of at least 0.7 while the system is at a temperature less than water critical temperature; and
  - b) contacting the activated metalloaluminophosphate molecular sieve in the heated up system with an oxygenate to form an olefin product.

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71. (Withdrawn) The method of claim 70, wherein the activated metalloaluminophosphate molecular sieve is maintained at a catalytic activity index of at least 0.8 while the system is at a temperature less than water critical temperature.
72. (Withdrawn) The method of claim 71, wherein the activated metalloaluminophosphate molecular sieve is maintained at a catalytic activity index of at least 0.9 while the system is at a temperature less than water critical temperature.
73. (Withdrawn) The method of claim 70, wherein the gas has a relative water pressure of at least 0.0001.
74. (Withdrawn) The method of claim 73, wherein the gas has a relative water pressure of at least 0.001.
75. (Withdrawn) The method of claim 74, wherein the gas has a relative water pressure of at least 0.01.
76. (Withdrawn) The method of claim 75, wherein the gas has a relative water pressure of at least 0.1.
77. (Withdrawn) The method of claim 70, wherein the system is at a temperature of from 150°C to 300°C.
78. (Withdrawn) The method of claim 70, wherein the activated metalloaluminophosphate molecular sieve is contacted with the gas for not greater than 500 hours while the system is at a temperature less than critical water temperature.

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79. (Withdrawn) The method of claim 78, wherein the activated metalloaluminophosphate molecular sieve is contacted with the gas from 0.01 hour to 50 hours while the system is at a temperature less than critical water temperature.
80. (Withdrawn) The method of claim 70, wherein the activated metalloaluminophosphate molecular sieve is a silicoaluminophosphate molecular sieve.
81. (Withdrawn) The method of claim 70, further comprising polymerizing olefin in the olefin product, in the presence of a polymerization catalyst system in a polymerization reactor, to produce one or more polymer products.
82. (Withdrawn) The method of claim 70, wherein the catalytic activity is catalytic activity in reaction processes selected from the group consisting of catalytic cracking, hydrocracking, dewaxing, olefin forming reactions, aromatics forming reactions, paraffin isomerization, olefin isomerization, paraffin hydroisomerization, olefin hydroisomerization, olefin oligomerization, olefin polymerization, reforming, alkylation, and disproportionation of aromatics.
83. (Withdrawn) The method of claim 70, wherein the activated molecular sieve is maintained at an ethylene or propylene selectivity of at least 25 wt % while the system is at a temperature less than water critical temperature.
84. (Withdrawn) A method of shutting-down an olefin forming reaction system, comprising the steps of:
- a) contacting an activated metalloaluminophosphate molecular sieve in a reaction system with an oxygenate to form an olefin product;
  - b) stopping contact of the activated metalloaluminophosphate molecular sieve with the oxygenate; and

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- c) sweeping gas through the reaction system to cool down the system, wherein the activated metalloaluminophosphate molecular sieve is maintained at a catalytic activity index of at least 0.7 while the system is at a temperature less than water critical temperature.
85. (Withdrawn) The method of claim 84, wherein the activated metalloaluminophosphate molecular sieve is contacted with the gas for a time effective to maintain a catalytic activity index of at least 0.8.
86. (Withdrawn) The method of claim 85, wherein the activated metalloaluminophosphate molecular sieve is contacted with the gas for a time effective to maintain a catalytic activity index of at least 0.9.
87. (Withdrawn) The method of claim 84, wherein the gas has a relative water pressure of at least 0.0001.
88. (Withdrawn) The method of claim 87, wherein the gas has a relative water pressure of at least 0.001.
89. (Withdrawn) The method of claim 88, wherein the gas has a relative water pressure of at least 0.01.
90. (Withdrawn) The method of claim 89, wherein the gas has a relative water pressure of at least 0.1.
91. (Withdrawn) The method of claim 84, wherein the system is at a temperature of from 150°C to 300°C.

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92. (Withdrawn) The method of claim 84, wherein the activated metalloaluminophosphate molecular sieve is contacted with the gas for not greater than 500 hours while the system is at a temperature less than critical water temperature.
93. (Withdrawn) The method of claim 92, wherein the activated metalloaluminophosphate molecular sieve is contacted with the gas from 0.01 hour to 50 hours while the system is at a temperature less than critical water temperature.
94. (Withdrawn) The method of claim 84, wherein the activated metalloaluminophosphate molecular sieve is a silicoaluminophosphate molecular sieve.
95. (Withdrawn) The method of claim 84, wherein the catalytic activity is catalytic activity in reaction processes selected from the group consisting of catalytic cracking, hydrocracking, dewaxing, olefin forming reactions, aromatics forming reactions, paraffin isomerization, olefin isomerization, paraffin hydroisomerization, olefin hydroisomerization, olefin oligomerization, olefin polymerization, reforming, alkylation, and disproportionation of aromatics.
96. (Withdrawn) The method of claim 84, wherein the activated molecular sieve is further maintained at an ethylene or propylene selectivity of at least 25 wt %.
97. (Original) A method of protecting catalytic activity of an activated metalloaluminophosphate molecular sieve in olefin forming reactions due to contact with water vapor, comprising contacting the activated metalloaluminophosphate molecular sieve with a gas containing water to effectively maintain the activated metalloaluminophosphate molecular sieve at a predetermined catalytic activity index, wherein the activated metalloaluminophosphate molecular sieve contains Si and Al at a Si/Al ratio of not greater than 0.5.

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98. (Original) The method of claim 97, wherein the activated metalloaluminophosphate molecular sieve contains Si and Al at a Si/Al ratio of not greater than 0.3.
99. (Original) The method of claim 98, wherein the activated metalloaluminophosphate molecular sieve contains Si and Al at a Si/Al ratio of not greater than 0.2.
100. (Original) The method of claim 99, wherein the activated metalloaluminophosphate molecular sieve contains Si and Al at a Si/Al ratio of not greater than 0.15.
101. (Original) The method of claim 100, wherein the activated metalloaluminophosphate molecular sieve contains Si and Al at a Si/Al ratio of not greater than 0.1.
102. (Original) The method of claim 97, wherein the metalloaluminophosphate molecular sieves contain Si and Al at a ratio of at least 0.005.
103. (Original) The method of claim 102, wherein the metalloaluminophosphate molecular sieves contain Si and Al at a ratio of at least 0.01.
104. (Original) The method of claim 103, wherein the metalloaluminophosphate molecular sieves contain Si and Al at a ratio of at least 0.02.
105. (Original) A method of protecting activated metalloaluminophosphate molecular sieve from loss of catalytic activity, comprising contacting the activated metalloaluminophosphate molecular sieve with a gas containing water at a temperature above water critical temperature.

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106. (Withdrawn) A method of starting-up an olefin forming reaction system, comprising the steps of:
- a) sweeping gas through the reaction system to heat up the system, with the reaction system containing activated metalloaluminophosphate molecular sieve, wherein the activated molecular sieve is maintained at a temperature above water critical temperature; and
  - b) contacting the activated metalloaluminophosphate molecular sieve in the heated up system with an oxygenate to form an olefin product.
107. (Withdrawn) A method of shutting-down an olefin forming reaction system, comprising the steps of:
- (a) contacting an activated metalloaluminophosphate molecular sieve in a reaction system with an oxygenate to form an olefin product;
  - (b) stopping contact of the activated metalloaluminophosphate molecular sieve with the oxygenate;
  - (c) sweeping a gas through the reaction system to cool down the system, while the the activated metalloaluminophosphate molecular sieve is maintained at a temperature above water critical temperature.

=> fil reg

FILE 'REGISTRY' ENTERED AT 14:25:14 ON 01 AUG 2005

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FILE 'REGISTRY' ENTERED AT 11:03:10 ON 01 AUG 2005

L1 618 SEA ABB=ON PLU=ON (SI(L)AL(L)P(L)O)/ELS

FILE 'HCAPLUS' ENTERED AT 11:04:43 ON 01 AUG 2005

L2 954 SEA ABB=ON PLU=ON L1  
 L3 0 SEA ABB=ON PLU=ON L2 AND CATALY?(A)ACTIV?(A)INDEX?  
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 L8 3 SEA ABB=ON PLU=ON L7 AND FORMUL?  
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 D L8 ABS  
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 L12 1962 SEA ABB=ON PLU=ON CATALY?(A)ACTIV?(A)INDEX? OR CAI  
 L13 9 SEA ABB=ON PLU=ON L12 AND (SAPO? OR SILICOALMINOPHOSPHATE OR METALLOALUMINOPHOSPHATE OR ZEOLIT?)  
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L1 618 SEA FILE=REGISTRY ABB=ON PLU=ON (SI(L)AL(L)P(L)O)/ELS

L2 954 SEA FILE=HCAPLUS ABB=ON PLU=ON L1

L5 77 SEA FILE=HCAPLUS ABB=ON PLU=ON L2 AND CATALY?  
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 L10 1 SEA FILE=HCAPLUS ABB=ON PLU=ON L9 AND (SAPO? OR  
 METALLOALUMINOPHOSPHATE OR ZEOLIT?)  
 L11 1 SEA FILE=HCAPLUS ABB=ON PLU=ON L9 AND (SAPO? OR  
 SILICOALMINOPHOSPHATE OR METALLOALUMINOPHOSPHATE OR  
 ZEOLIT?)  
 L12 1962 SEA FILE=HCAPLUS ABB=ON PLU=ON CATALY? (A) ACTIV? (A) IND  
 EX? OR CAI  
 L13 9 SEA FILE=HCAPLUS ABB=ON PLU=ON L12 AND (SAPO? OR  
 SILICOALMINOPHOSPHATE OR METALLOALUMINOPHOSPHATE OR  
 ZEOLIT?)  
 L16 219822 SEA FILE=HCAPLUS ABB=ON PLU=ON (SAPO? OR SILICOALMINO  
 PHOSPHATE OR METALLOALUMINOPHOSPHATE OR ZEOLIT?)  
 L19 6377 SEA FILE=HCAPLUS ABB=ON PLU=ON L16 (L) CATALY? (2A) ACTIV  
 IT?  
 L20 312 SEA FILE=HCAPLUS ABB=ON PLU=ON L19 (L) SIEVE?  
 L21 4 SEA FILE=HCAPLUS ABB=ON PLU=ON L20 AND FORMUL?  
 L22 6 SEA FILE=HCAPLUS ABB=ON PLU=ON L20 AND INDEX?  
 L23 50 SEA FILE=HCAPLUS ABB=ON PLU=ON L12 AND FORMULA?  
 L24 1 SEA FILE=HCAPLUS ABB=ON PLU=ON L23 AND L16  
 L26 6 SEA FILE=HCAPLUS ABB=ON PLU=ON L20 AND PROTECT?  
 L27 27 SEA FILE=HCAPLUS ABB=ON PLU=ON L8 OR L10 OR L11 OR  
 L13 OR L21 OR L22 OR L24 OR L26

=> fil hcap

FILE 'HCAPLUS' ENTERED AT 12:51:11 ON 02 AUG 2005

=> d l19 2-27 ibib abs hitstr hitind

L19 ANSWER 1 OF 27 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2005:140878 HCAPLUS

DOCUMENT NUMBER: 142:263633

TITLE: Process for starting up a reaction system  
 comprising heating the system, adding  
 metalloaluminophosphate catalyst, heating the  
 catalyst, and contacting the heated catalyst  
 with feed.

INVENTOR(S): Beech, James H.; Walter, Richard E.; Fung,  
 Shun Chong; Loezos, Peter N.; Janssen, Marcel  
 Johannes; Martens, Luc Roger Marc; Clem,  
 Kenneth Ray; Vaughn, Stephen Neil

PATENT ASSIGNEE(S): USA

SOURCE: U.S. Pat. Appl. Publ., 25 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.    | KIND | DATE     | APPLICATION NO. | DATE |
|---------------|------|----------|-----------------|------|
| -----         | ---- | -----    | -----           |      |
| US 2005038306 | A1   | 20050217 | US 2003-641718  | 2003 |

WO 2005019388

A1

20050303

WO 2004-US20770

0815

2004

0628

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ,  
CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG,  
ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP,  
KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,  
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL,  
PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR,  
TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW  
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,  
ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH,  
CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU,  
MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI,  
CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.:

US 2003-641718

A

2003

0815

AB A process for starting up a catalytic reaction system comprises heating the system, adding a **metalloaluminophosphate** catalyst, heating the catalyst, and contacting the heated catalyst with feed. This method **protects** mol. **sieves** against loss of **catalytic activity** due to contact with water mols. Apparatus diagrams are given.

IC ICM C07C002-64

ICS C10G011-00; C10G047-02; C10G035-04; C07C005-22; C07C001-20;  
C07C002-02INCL 585446000; 585470000; 585477000; 585502000; 585639000; 585643000;  
585664000; 585671000; 585708000; 585709000

CC 47-3 (Apparatus and Plant Equipment)

Section cross-reference(s): 51

L19 ANSWER 2 OF 27 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2005:140423 HCAPLUS

DOCUMENT NUMBER: 142:222317

TITLE: Method of shutting down a reaction system

INVENTOR(S): Beech, James H.; Walter, Richard E.; Fung,  
Shun Chong; Loezos, Peter N.; Janssen, Marcel  
Johannes; Vaughn, Stephen Neil

PATENT ASSIGNEE(S): USA

SOURCE: U.S. Pat. Appl. Publ., 25 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.    | KIND | DATE     | APPLICATION NO. | DATE         |
|---------------|------|----------|-----------------|--------------|
| -----         | ---- | -----    | -----           |              |
| US 2005035027 | A1   | 20050217 | US 2003-641447  | 2003<br>0815 |
| WO 2005019389 | A1   | 20050303 | WO 2004-US20771 | 2004<br>0628 |

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ,  
CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG,  
ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP,  
KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,  
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL,  
PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR,  
TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW  
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,  
ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH,  
CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU,  
MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI,  
CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.:

US 2003-641447

A

2003

0815

AB A method is disclosed for shutting down reaction systems containing a reactor and a regenerator. The reaction systems are those that use catalysts containing mol. **sieves**, particularly **metalloaluminophosphate mol. sieves**, especially **metalloaluminophosphate mol. sieves** which are susceptible to loss of **catalytic activity** due to contact with H<sub>2</sub>O mols. The method involves (1) stopping of a hydrocarbon feed from contacting the catalyst in the reactor, (2) injecting a feed replacement gas (e.g., steam, N<sub>2</sub>, CO<sub>2</sub>, flue gas) into the reactor at  $\geq 300^\circ$  during or after stopping the flow of the hydrocarbon feed to the reactor, (3) injecting an O<sub>2</sub>-containing gas (e.g., air) into the regenerator to burn C deposits on the catalyst, and (4) unloading of the catalyst from the regenerator to **protect** against loss of **catalytic activity** that can occur due to contact with H<sub>2</sub>O mols.

IC ICM C10G035-10

INCL 208154000

CC 51-6 (Fossil Fuels, Derivatives, and Related Products)

Section cross-reference(s): 45

IT Petroleum refining catalysts

(decoking and unloading during shutdown of catalytic reaction system for **protection** against loss of catalytic activity)

L19 ANSWER 3 OF 27 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:1127163 HCAPLUS

DOCUMENT NUMBER: 142:58690

TITLE: Maintaining **zeolitic molecular sieve catalytic activity** under water vapor conditions

INVENTOR(S): Loezos, Peter N.; Fung, Shun Chong; Vaughn, Stephen Neil; Clem, Kenneth Ray; Beech, James H.; Coute, Nicolas P.; Janssen, Marcel Johannes; Martens, Luc Roger Marc; Strohmaier, Karl G.

PATENT ASSIGNEE(S): USA

SOURCE: U.S. Pat. Appl. Publ., 22 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.

KIND

DATE

APPLICATION NO.

DATE

US 2004260140

A1

20041223

US 2003-600123

2003  
0620

WO 2005000468

A1

20050106

WO 2004-US17611

2004  
0604

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ,  
 CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG,  
 ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP,  
 KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,  
 MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL,  
 PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR,  
 TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW  
 RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,  
 ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH,  
 CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU,  
 MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI,  
 CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.:

US 2003-600123

A

2003  
0620

- AB Methods for protecting metalloaluminophosphate  
 zeolitic mol. sieves, particularly  
 silicoaluminophosphate (SAPO) zeolites, from  
 loss of catalytic activity (e.g.,  
 methanol-to-olefin conversion) by contacting the activated  
 catalyst with a gas containing water are described. These methods  
 provide procedures that enable activated zeolitic mol.  
 sieves to contact water vapor, within a certain range of  
 time, temperature, and water partial pressure conditions, before the  
 sieve becomes substantially deactivated.
- IC ICM C07C001-00  
 ICS B01J029-84; B01J029-85
- INCL 585951000; 585639000; 502208000; 502214000
- CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)  
 Section cross-reference(s): 48, 67
- IT Alkenes, preparation  
 (C2-5; maintaining zeolitic mol. sieve  
 catalytic activity under water vapor  
 conditions)
- IT Process control  
 (in maintaining zeolitic mol. sieve  
 catalytic activity under water vapor  
 conditions)
- IT Alkylation catalysts  
 Cracking catalysts  
 Disproportionation catalysts  
 Hydrocracking catalysts  
 Isomerization catalysts  
 Petroleum reforming catalysts  
 Polymerization catalysts  
 (maintaining zeolitic mol. sieve  
 catalytic activity under water vapor  
 conditions)
- IT Silicoaluminophosphate zeolites  
 (maintaining zeolitic mol. sieve  
 catalytic activity under water vapor  
 conditions)

- conditions)
- IT Aromatic hydrocarbons, reactions  
(maintaining **zeolitic mol. sieve catalytic activity** under water vapor conditions)
- IT Catalysts  
(methanol-to-olefins process; maintaining **zeolitic mol. sieve catalytic activity** under water vapor conditions)
- IT Polymerization catalysts  
(oligomerization; maintaining **zeolitic mol. sieve catalytic activity** under water vapor conditions)
- IT Hydrocarbons, reactions  
(oxy; maintaining **zeolitic mol. sieve catalytic activity** under water vapor conditions)
- IT Isomerization  
(reductive, catalysts; maintaining **zeolitic mol. sieve catalytic activity** under water vapor conditions)
- IT Isomerization catalysts  
(reductive; maintaining **zeolitic mol. sieve catalytic activity** under water vapor conditions)
- IT 7732-18-5, Water, processes  
(maintaining **zeolitic mol. sieve catalytic activity** under water vapor conditions)
- IT 67-56-1, Methanol, reactions  
(maintaining **zeolitic mol. sieve catalytic activity** under water vapor conditions)

L19 ANSWER 4 OF 27 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:1080675 HCAPLUS

DOCUMENT NUMBER: 142:28830

TITLE: Method of **protecting SAPO**  
molecular **sieve** from loss of  
**catalytic activity**

INVENTOR(S): Fung, Shun Chong; Vaughn, Stephen Neil;  
Janssen, Marcel Johannes; Martens, Luc Roger  
Marc; Clem, Kenneth Ray

PATENT ASSIGNEE(S): Exxonmobil Chemical Patents Inc., USA

SOURCE: U.S. Pat. Appl. Publ., 19 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.    | KIND | DATE     | APPLICATION NO. | DATE         |
|---------------|------|----------|-----------------|--------------|
| -----         | ---- | -----    | -----           |              |
| US 2004254068 | A1   | 20041216 | US 2003-461621  | 2003<br>0613 |
| US 6897179    | B2   | 20050524 |                 |              |
| WO 2005000465 | A1   | 20050106 | WO 2004-US15794 | 2004         |

0520

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ,  
 CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG,  
 ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP,  
 KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,  
 MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL,  
 PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR,  
 TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW  
 RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,  
 ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH,  
 CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU,  
 MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI,  
 CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.:

US 2003-461621

A

2003

0613

AB Disclosed is a method of **protecting** the loss of  
**catalytic activity** of  
**metalloaluminophosphate mol. sieve**, particularly  
 a **SAPO mol. sieve**, from contact with moisture.  
 The method involves heating the **metalloaluminophosphate**  
**mol. sieve** so as to remove template, and provide a mol.  
**sieve** in sufficiently dry form for storage.

IC ICM B01J027-182  
 INCL 502208000; 502214000  
 CC 67-1 (Catalysis, Reaction Kinetics, and Inorganic Reaction  
 Mechanisms)  
 ST method **protecting** SAPO zeolite loss catalytic activity  
 IT Aluminophosphate zeolites  
 (metalloaluminophosphate; method of  
**protecting SAPO mol. sieve** from  
 loss of catalytic activity)

IT Air  
 Drying  
 Flue gases  
 Heating  
 Water vapor  
 (method of **protecting SAPO mol.**  
**sieve** from loss of catalytic activity  
 )

IT Silicoaluminophosphate zeolites  
 (method of **protecting SAPO mol.**  
**sieve** from loss of catalytic activity  
 )

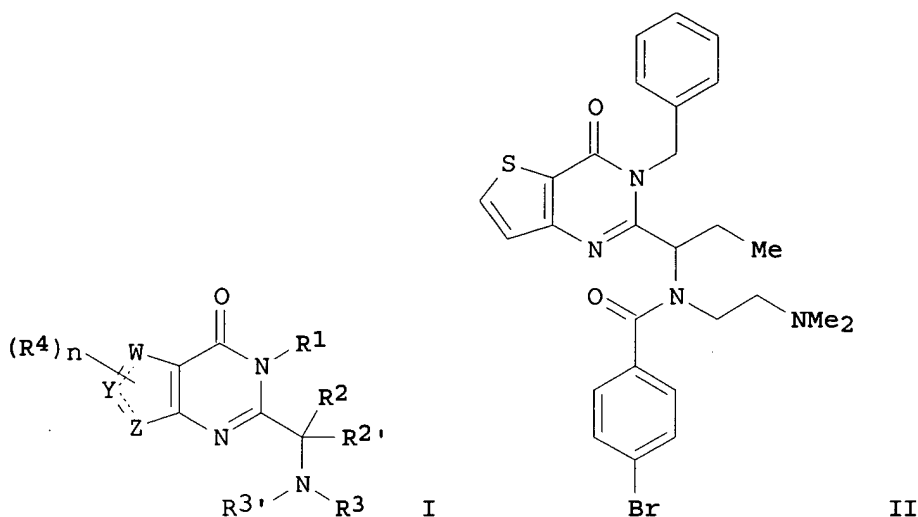
IT Amines, processes  
 Quaternary ammonium compounds, processes  
 (method of **protecting SAPO mol.**  
**sieve** from loss of catalytic activity  
 )

IT 75-31-0, Isopropylamine, processes 108-91-8, Cyclohexylamine,  
 processes 110-86-1, Pyridine, processes 110-89-4, Piperidine,  
 processes 110-91-8, Morpholine, processes 121-44-8,  
 Triethylamine, processes 142-84-7, Dipropylamine 1003-03-8,  
 Cyclopentylamine 3218-02-8, Aminomethyl cyclohexane 7440-59-7,  
 Helium, processes 7727-37-9, Nitrogen, processes 7732-18-5,  
 Water, processes  
 (method of **protecting SAPO mol.**  
**sieve** from loss of catalytic activity  
 )

L19 ANSWER 5 OF 27 HCAPLUS COPYRIGHT 2005 ACS on STN  
 ACCESSION NUMBER: 2003:472471 HCAPLUS  
 DOCUMENT NUMBER: 139:69276  
 TITLE: Preparation of thienopyrimidines as mitotic  
 kinesin inhibitors for the treatment of cancer  
 INVENTOR(S): Fraley, Mark E.; Hartman, George D.; Hoffman,  
 William F.  
 PATENT ASSIGNEE(S): Merck & Co., Inc., USA  
 SOURCE: PCT Int. Appl., 157 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

| PATENT NO.             | KIND   | DATE     | APPLICATION NO. | DATE              |
|------------------------|--|----------|-----------------|-------------------|
| WO 2003050064          | A2   | 20030619 | WO 2002-US38417 | 2002<br>1202      |
| WO 2003050064          | A3   | 20031016 |                 |                   |
| WO 2003050064          | B1   | 20031218 |                 |                   |
| W:                     | AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW |          |                 |                   |
| RW:                    | GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG   |          |                 |                   |
| CA 2467722             | AA   | 20030619 | CA 2002-2467722 | 2002<br>1202      |
| EP 1463733             | A2   | 20041006 | EP 2002-804714  | 2002<br>1202      |
| R:                     | AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK   |          |                 |                   |
| JP 2005516007          | T2   | 20050602 | JP 2003-551092  | 2002<br>1202      |
| PRIORITY APPLN. INFO.: |  |          | US 2001-338383P | P<br>2001<br>1206 |
|                        |  |          | WO 2002-US38417 | W<br>2002<br>1202 |

OTHER SOURCE(S): MARPAT 139:69276  
 GI



AB Title compds. I [wherein one of W, Y, or Z = S and the other 2 = CH; R1 = H, perfluoroalkyl, or (un)substituted (cyclo)alkyl, alkenyl, alkynyl, aryl, aralkyl, or heterocyclyl; R2, R2', R3, and R3' = independently H, CO<sub>2</sub>H, perfluoroalkyl, SO<sub>2</sub>NR<sub>7</sub>R<sub>8</sub>, or (un)substituted (CO)aOb-(cyclo)alkyl, (CO)aOb-alkenyl, (CO)aOb-alkynyl, (CO)aOb-aryl, (CO)aOb-heterocyclyl, or SO<sub>2</sub>-alkyl; or CR<sub>2</sub>R<sub>2</sub>' = (un)substituted (hetero)alkyl; or CR<sub>3</sub>R<sub>3</sub>' = (un)substituted heteroalkyl; R4 = halo, OH, CN, CO<sub>2</sub>H, perfluoroalkyl(oxy), SO<sub>2</sub>NR<sub>7</sub>R<sub>8</sub>, or (un)substituted (CO)aOb-(cyclo)alkyl, (CO)aOb-alkenyl, (CO)aOb-alkynyl, (CO)aOb-aryl, (CO)aOb-heterocyclyl, or SO<sub>2</sub>-alkyl; R7 and R8 = independently H, SO<sub>2</sub>Ra, CON(Rb)<sub>2</sub>, or (un)substituted (cyclo)alkyl, alkenyl, alkynyl, aryl, heterocyclyl, CO-Ob-(cyclo)alkyl, CO-Ob-alkenyl, CO-Ob-alkynyl, CO-Ob-aryl, or CO-Ob-heterocyclyl; or NR<sub>7</sub>R<sub>8</sub> = (un)substituted heterocyclyl; Ra = (cyclo)alkyl or heterocyclyl; Rb = H, (cyclo)alkyl, aryl, heterocyclyl, CO<sub>2</sub>-alkyl, CO-alkyl, or SO<sub>2</sub>Ra; a and b = independently 0-1; n = 0-2; and pharmaceutically acceptable salts or stereoisomers thereof] were prepared for inhibiting KSP kinesin. For example, amidation of Me 3-aminothiophene-2-carboxylate with butyryl chloride afforded Me 3-(butyrylamino)thiophene-2-carboxylate, which was **saponified** to give the acid. Amidation with benzylamine, followed by cyclization provided 3-benzyl-2-propylthieno[3,2-d]pyrimidin-4(3H)-one. Bromination, coupling with N,N-dimethylethylenediamine, and reaction with 4-bromobenzoyl chloride gave the N-[1-(thienopyrimidinyl)propyl]benzamide II. The latter inhibited human poly-histidine tagged KSP motor domain with an IC<sub>50</sub> value of ≤50 μM. Thus, I and pharmaceutical compns. thereof are useful for treating cellular proliferative diseases associated with KSP kinesin activity, such as cancer (no data). Preparation of thienopyrimidine kinesin inhibitors from thiophenes, amines, and acid chlorides.

IC ICM C07C

CC 28-16 (Heterocyclic Compounds (More Than One Hetero Atom))  
Section cross-reference(s): 1, 63

IT 50-35-1, Thalidomide 10540-29-1, Tamoxifen 33069-62-4,  
Paclitaxel 37300-21-3, Pentosan polysulfate 84449-90-1,

Raloxifene 86090-08-6, Angiostatin 99519-84-3, CAI  
 117048-59-6, Combretastatin A-4 132746-81-7 144494-65-5,  
 Tirofiban 148717-90-2, Squalamine 180288-69-1, Trastuzumab  
 (combination therapy; preparation and compns. of thienopyrimidine  
 kinesin inhibitors for treatment of cancer)

L19 ANSWER 6 OF 27 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2000:881090 HCAPLUS

DOCUMENT NUMBER: 134:44373

TITLE: Controlled thermal decomposition of templates  
 for synthesis of modified  
 silicoaluminophosphate and molecular sieve  
 catalysts

INVENTOR(S): Fung, Shun C.; Janssen, Marcel J. G.; Vaughn,  
 Stephen N.; Mertens, Machteld M.; Schweizer,  
 Albert E.; Martens, Luc R. M.; Hall, Richard  
 B.; Mortier, Wilfried J.; Searle, Ronald G.;  
 Xiong, Yi-Gang

PATENT ASSIGNEE(S): Exxon Chemical Patents Inc., USA

SOURCE: PCT Int. Appl., 36 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

| PATENT NO.  | KIND | DATE     | APPLICATION NO. | DATE         |
|---|------|----------|-----------------|--------------|
| WO 2000075072   | A1   | 20001214 | WO 2000-US15453 | 2000<br>0605 |
| W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN,<br>CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU,<br>ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS,<br>LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO,<br>RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ,<br>VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM<br>RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE,<br>CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL,<br>PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE,<br>SN, TD, TG |      |          |                 |              |
| CA 2374250  | AA   | 20001214 | CA 2000-2374250 | 2000<br>0605 |
| BR 2000011422   | A    | 20020326 | BR 2000-11422   | 2000<br>0605 |
| EP 1192105  | A1   | 20020403 | EP 2000-938150  | 2000<br>0605 |
| EP 1192105  | B1   | 20030827 |                 |              |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE,<br>MC, PT, IE, SI, LT, LV, FI, RO  |      |          |                 |              |
| JP 2003501241   | T2   | 20030114 | JP 2001-501558  | 2000<br>0605 |
| AT 248127   | E    | 20030915 | AT 2000-938150  | 2000<br>0605 |

|                        |    |          |                  |                   |
|------------------------|----|----------|------------------|-------------------|
| AU 770995              | B2 | 20040311 | AU 2000-53231    | 2000<br>0605      |
| ES 2203484             | T3 | 20040416 | ES 2000-938150   | 2000<br>0605      |
| TW 593144              | B  | 20040621 | TW 2000-89111081 | 2000<br>0902      |
| ZA 2001009371          | A  | 20020717 | ZA 2001-9371     | 2001<br>1114      |
| NO 2001005936          | A  | 20011204 | NO 2001-5936     | 2001<br>1204      |
| PRIORITY APPLN. INFO.: |    |          | US 1999-137997P  | P<br>1999<br>0607 |
|                        |    |          | WO 2000-US15453  | W<br>2000<br>0605 |

AB Modified mol. **sieves**, especially silicoaluminophosphate **zeolites**, are prepared by heating a template-containing mol. **sieve** (e.g., at 200-800°) to remove a portion of the template from the mol. **sieve**, followed by cooling the heated mol. **sieve** to leave a residue of template, or the carbonaceous residue of the template, to cover the catalytic sites within the mol. **sieve**. This modified mol. **sieve** can then be combined with a binder, in which 10-90 (most preferably 30-70) volume% of the microporous structure is occupied by the template or template residue, and the catalyst has a Davison **Index** of ≤30 (most preferably ≤10). Suitable modified mol. **sieves** include SAPO-5, SAPO-8, SAPO-11, SAPO-16, SAPO-18, SAPO-20, SAPO-31, SAPO-34, SAPO-35, SAPO-36, SAPO-37, SAPO-40, SAPO-41, SAPO-42, SAPO-44, SAPO-47, and SAPO-56. Suitable templates include tetraethylammonium hydroxide, cyclopentylamine, aminomethylcyclohexane, piperidine, triethylamine, cyclohexylamine, triethylhydroxyethylamine, morpholine, dipropylamine, pyridine, and isopropylamine. The SAPO compns. have **catalytic activity** in conversion of oxygen-containing compds. (i.e., "oxygenate" feedstocks) to olefins, and in olefin polymerization

IC ICM C01B037-00

ICS C01B039-02; B01J029-04; C07C001-00

CC 51-11 (Fossil Fuels, Derivatives, and Related Products)

Section cross-reference(s): 35

REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L19 ANSWER 7 OF 27 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2000:881062 HCAPLUS

DOCUMENT NUMBER: 134:44372

TITLE: Protecting catalytic activity of a SAPO molecular

INVENTOR(S): **sieve**  
 Janssen, Marcel J. G.; Van Oorschot, Cornelius  
 W. M.; Fung, Shun C.; Martens, Luc R. M.;  
 Mortier, Wilfried J.; Searle, Ronald G.;  
 Mertens, Machteld M.; Vaughn, Stephen N.  
 PATENT ASSIGNEE(S): Exxon Chemical Patents Inc., USA  
 SOURCE: PCT Int. Appl., 37 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

| PATENT NO.  | KIND | DATE     | APPLICATION NO. | DATE         |
|---|------|----------|-----------------|--------------|
| WO 2000074848   | A1   | 20001214 | WO 2000-US15468 | 2000<br>0605 |
| W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN,<br>CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU,<br>ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS,<br>LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO,<br>RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ,<br>VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM<br>RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE,<br>CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL,<br>PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE,<br>SN, TD, TG |      |          |                 |              |
| US 6316683  | B1   | 20011113 | US 1999-391770  | 1999<br>0908 |
| CA 2371102  | AA   | 20001214 | CA 2000-2371102 | 2000<br>0605 |
| BR 2000011682   | A    | 20020305 | BR 2000-11682   | 2000<br>0605 |
| EP 1192003  | A1   | 20020403 | EP 2000-939575  | 2000<br>0605 |
| EP 1192003  | B1   | 20041215 |                 |              |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE,<br>MC, PT, IE, SI, LT, LV, FI, RO  |      |          |                 |              |
| EP 1369177  | A1   | 20031210 | EP 2003-20750   | 2000<br>0605 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE,<br>MC, PT, IE, FI, CY  |      |          |                 |              |
| CN 1131109  | B    | 20031217 | CN 2000-808614  | 2000<br>0605 |
| CN 1493403  | A    | 20040505 | CN 2003-155774  | 2000<br>0605 |
| AU 772744   | B2   | 20040506 | AU 2000-54645   | 2000<br>0605 |
| AU 2000054645   | A5   | 20001228 |                 |              |
| EP 1441022  | A1   | 20040728 | EP 2004-7379    |              |

2000  
0605R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE,  
MC, PT, IE, FI, CY

AT 284755 E 20050115 AT 2000-939575

2000  
0605

ES 2233397 T3 20050616 ES 2000-939575

2000  
0605

US 2001020119 A1 20010906 US 2001-760289

2001  
0112US 6455748 B2 20020924  
NO 2001005937 A 20011204 NO 2001-59372001  
1204

ZA 2001010056 A 20021113 ZA 2001-10056

2001  
1206

US 2002198427 A1 20021226 US 2002-206574

2002  
0726

US 2004015030 A1 20040122 US 2003-615753

2003  
0709

PRIORITY APPLN. INFO.:

US 1999-137933P P

1999  
0607

US 1999-391770 A3

1999  
0908

EP 2000-939575 A3

2000  
0605

WO 2000-US15468 W

2000  
0605

US 2001-760289 A3

2001  
0112

US 2002-206574 A1

2002  
0726

AB This invention is directed to a method of making an olefin product from an oxygenate feedstock and a method of **protecting** catalytic activity of a silicoaluminophosphate mol. sieve. The methods comprise providing a silicoaluminophosphate mol. sieve having catalytic sites within the mol. sieve and contacting the sieve with an oxygenate feedstock under conditions effective to produce an olefin product, wherein the silicoaluminophosphate mol. sieve contacting the oxygenate feedstock has a methanol uptake **index** of at least 0.15.

IC ICM B01J029-85

ICS C07C001-20; C07C011-02; C10G003-00  
CC 51-11 (Fossil Fuels, Derivatives, and Related Products)  
Section cross-reference(s): 67  
ST **SAPO zeolite catalyst olefin manuf;**  
**silicoaluminophosphate mol sieve catalytic**  
**activity shield**  
IT Alcohols, reactions  
(C4-20; oxygenate; **protecting catalytic**  
**activity of a SAPO mol. sieve**)  
IT Aromatic hydrocarbons, uses  
(C6-30; **protecting catalytic**  
**activity of a SAPO mol. sieve**)  
IT Silicoaluminophosphate zeolites  
(**protecting catalytic activity of**  
**a SAPO mol. sieve**)  
IT Alkanes, uses  
(**protecting catalytic activity of**  
**a SAPO mol. sieve**)  
IT Cycloalkanes  
(**protecting catalytic activity of**  
**a SAPO mol. sieve**)  
IT 50-00-0, Formaldehyde, reactions 60-29-7, Diethyl ether,  
reactions 64-17-5, Ethanol, reactions 64-19-7, Acetic acid,  
reactions 67-56-1, Methanol, reactions 67-63-0, Isopropanol,  
reactions 67-64-1, Dimethyl ketone, reactions 71-23-8,  
Propanol, reactions 108-20-3, Di-isopropyl ether 115-10-6,  
Dimethyl ether 540-67-0, Methylenelether 616-38-6, Dimethyl  
carbonate  
(oxygenate; **protecting catalytic**  
**activity of a SAPO mol. sieve**)  
IT 74-85-1P, Ethylene, preparation 115-07-1P, Propylene,  
preparation  
(**protecting catalytic activity of**  
**a SAPO mol. sieve**)  
IT 124-38-9, Carbon dioxide, uses 630-08-0, Carbon monoxide, uses  
1333-74-0, Hydrogen, uses 7440-37-1, Argon, uses 7440-59-7,  
Helium, uses 7727-37-9, Nitrogen, uses 7782-44-7, Oxygen, uses  
(**protecting catalytic activity of**  
**a SAPO mol. sieve**)  
IT 66-40-0D, Tetraethyl ammonium, salts 75-31-0, Isopropylamine,  
reactions 108-91-8, Cyclohexylamine, reactions 110-86-1,  
Pyridine, reactions 110-89-4, Piperidine, reactions 110-91-8,  
Morpholine, reactions 121-44-8, Triethylamine, reactions  
142-84-7, Dipropylamine 302-61-4D, salts 1003-03-8,  
Cyclopentylamine 3218-02-8, Aminomethyl cyclohexane  
(template; **protecting catalytic**  
**activity of a SAPO mol. sieve**)  
REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L19 ANSWER 8 OF 27 HCAPLUS COPYRIGHT 2005 ACS on STN  
ACCESSION NUMBER: 1999:704835 HCAPLUS  
DOCUMENT NUMBER: 131:301206  
TITLE: Synthesis of ECR-40 as large pore  
aluminophosphate or substituted  
aluminophosphate zeolite  
INVENTOR(S): Vaughan, David E. W.  
PATENT ASSIGNEE(S): Exxon Research and Engineering Co., USA  
SOURCE: U.S., 4 pp.

DOCUMENT TYPE: CODEN: USXXAM  
 LANGUAGE: Patent  
 FAMILY ACC. NUM. COUNT: English  
 1  
 PATENT INFORMATION:

| PATENT NO.  | KIND | DATE     | APPLICATION NO. | DATE              |
|---|------|----------|-----------------|-------------------|
| US 5976491  | A    | 19991102 | US 1998-169653  | 1998<br>1009      |
| CA 2345254  | AA   | 20000420 | CA 1999-2345254 | 1999<br>1005      |
| WO 2000021884   | A1   | 20000420 | WO 1999-US23203 | 1999<br>1005      |
| W: AL, AU, BA, BB, BG, BR, CA, CN, CU, CZ, EE, GE, HR, HU,<br>ID, IL, IN, IS, JP, KP, KR, LC, LK, LR, LT, LV, MG, MK,<br>MN, MX, NO, NZ, PL, RO, SG, SI, SK, SL, TR, TT, UA, UZ,<br>VN, YU, ZA, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM<br>RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH,<br>CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT,<br>SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN,<br>TD, TG |      |          |                 |                   |
| EP 1135330  | A1   | 20010926 | EP 1999-954751  | 1999<br>1005      |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE,<br>MC, PT, IE, FI  |      |          |                 |                   |
| JP 2002527328   | T2   | 20020827 | JP 2000-575797  | 1999<br>1005      |
| ZA 2001002279   | A    | 20020619 | ZA 2001-2279    | 2001<br>0319      |
| PRIORITY APPLN. INFO.:  |      |          | US 1998-169653  | A<br>1998<br>1009 |
|   |      |          | WO 1999-US23203 | W<br>1999<br>1005 |

AB A large-pore aluminophosphate or substituted aluminophosphate zeolite, ECR-40, is synthesized with the general formula  $aR:MxAlyPzO_2$ , where R is an organic template,  $a=0-0.4$ ,  $x=0-0.4$ ,  $y=0.35-0.5$ ,  $z=0.25-0.5$ , and M is Si, Ga, Ge, Co, Ni, Zn, Fe, V, Ti or their mixts. The zeolite is prepared hydrothermally using oxides in the form of a pre-dried amorphous gel, e.g., a SAPO gel, and an organic templating agent, e.g., bis(2-hydroxyethyl)dimethyl ammonium hydroxide. The low-acidity zeolites can be used as adsorbents and catalysts.

IT 247178-06-9P, Aluminum oxide phosphate silicate  $(Al_{0.49}O_{0.1}(PO_4)_{0.37}(SiO_3)_{0.14})$  247178-07-0P, Aluminum oxide phosphate silicide  $(Al_{0.49}O_{0.68}(PO_4)_{0.33}Si_{0.28})$  (synthesis of ECR-40 as large pore substituted aluminophosphate zeolite)

RN 247178-06-9 HCAPLUS

CN Aluminum oxide phosphate silicate (Al<sub>0.49</sub>O<sub>0.1</sub>(PO<sub>4</sub>)<sub>0.37</sub>(SiO<sub>3</sub>)<sub>0.14</sub>)  
(9CI) (CA INDEX NAME)

| Component | Ratio | Component<br>Registry Number |
|-----------|-------|------------------------------|
| =====     | ===== | =====                        |
| O         | 0.1   | 17778-80-2                   |
| O3Si      | 0.14  | 15593-90-5                   |
| O4P       | 0.37  | 14265-44-2                   |
| Al        | 0.49  | 7429-90-5                    |

RN 247178-07-0 HCAPLUS

CN Aluminum oxide phosphate silicide (Al<sub>0.49</sub>O<sub>0.68</sub>(PO<sub>4</sub>)<sub>0.33</sub>Si<sub>0.28</sub>)  
(9CI) (CA INDEX NAME)

| Component | Ratio | Component<br>Registry Number |
|-----------|-------|------------------------------|
| =====     | ===== | =====                        |
| O         | 0.68  | 17778-80-2                   |
| O4P       | 0.33  | 14265-44-2                   |
| Si        | 0.28  | 7440-21-3                    |
| Al        | 0.49  | 7429-90-5                    |

IC ICM C01B037-04

ICS C01B037-06; C01B037-08

INCL 423718000

CC 49-4 (Industrial Inorganic Chemicals)

Section cross-reference(s): 51, 67

IT 247178-06-9P, Aluminum oxide phosphate silicate  
(Al<sub>0.49</sub>O<sub>0.1</sub>(PO<sub>4</sub>)<sub>0.37</sub>(SiO<sub>3</sub>)<sub>0.14</sub>) 247178-07-0P, Aluminum  
oxide phosphate silicide (Al<sub>0.49</sub>O<sub>0.68</sub>(PO<sub>4</sub>)<sub>0.33</sub>Si<sub>0.28</sub>)  
(synthesis of ECR-40 as large pore substituted aluminophosphate  
zeolite)

REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L19 ANSWER 9 OF 27 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1998:690135 HCAPLUS

DOCUMENT NUMBER: 130:84184

TITLE: Progressive alteration in CV3 chondrites: more  
evidence for asteroidal alteration

AUTHOR(S): Krot, Alexander N.; Petaev, Michael I.; Scott,  
Edward R. D.; Choi, Byeon-Gak; Zolensky,  
Michael E.; Keil, Klaus

CORPORATE SOURCE: Hawaii Institute of Geophysics and  
Planetology, School of Ocean and Earth Science  
and Technology, University of Hawaii at Manoa,  
Honolulu, HI, 96822, USA

SOURCE: Meteoritics & Planetary Science (1998), 33(5),  
1065-1085

CODEN: MPSCFY; ISSN: 1086-9379

PUBLISHER: Meteoritical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The oxidized CV3 chondrites can be divided into two major  
subgroups or lithologies, Bali-like (CV3oxB) and Allende-like  
(CV3oxA), in which chondrules, calcium-aluminum-rich inclusions (CAIs) and matrixes show characteristic alteration  
features. The CV3oxB lithol. is present in Bali, Kaba, parts of

the Mokoia breccia and, possibly, in Grosnaja and Allan Hills (ALH) 85006. It is characterized by the presence of the secondary low-Ca phyllosilicates (**saponite** and sodium phlogopite), magnetite, Ni-rich sulfides, fayalite (Fa>90), Ca-Fe-rich pyroxenes (Fs10-50Wo45-50) and andradite. Phyllosilicates replace primary Ca-rich minerals in chondrules and **CAIs**, which suggests mobilization of Ca during aqueous alteration. Magnetite nodules are replaced to various degrees by fayalite, Ca-Fe-rich pyroxenes and minor andradite. Fayalite veins crosscut fine-grained rims around chondrules and extend into the matrix. Thermodyn. anal. of the observed reactions indicates that they could have occurred at relatively low temps. (<300°C) in the presence of aqueous solns. Oxygen isotopic compns. of the coexisting magnetite and fayalite plot close to the terrestrial fractionation line with large  $\Delta 18\text{O}_{\text{fayalite-magnetite}}$  fractionation (.apprx.20.permill.). Phyllosilicates, magnetite, fayalite, Ca-Fe-rich pyroxenes and andradite formed at relatively low temps. (<300°C) by fluid-rock interaction in an asteroidal environment. Secondary fayalite and phyllosilicates are virtually absent in chondrules and **CAIs** in the CV3oxA lithol., which is present in Allende and its dark inclusions, Axtell, ALHA81258, ALH 84028, Lewis Cliff (LEW) 86006, and parts of the Mokoia and Vigarano breccias. Instead secondary nepheline, sodalite, and fayalitic olivine are common. Fayalitic olivine in chondrules replaces low-Ca pyroxenes and rims and veins forsterite grains; it also forms coarse lath-shaped grains in matrix. Secondary Ca-Fe-rich pyroxenes are abundant. We infer that the CV3oxA lithol. experienced alteration at higher temps. than the CV3oxB lithol. The presence of the reduced and CV3oxA lithologies in the Vigarano breccia and CV3oxA and CV3oxB lithologies in the Mokoia breccia indicates that all CV3 chondrites came from one heterogeneously altered asteroid. The metamorphosed clasts in Mokoia may be rare samples of the hotter interior of the CV asteroid. The alteration features observed in the oxidized CV3 chondrites resulted from the fluid-rock interaction in an asteroid during progressive metamorphism of a heterogeneous mixture of ices and anhydrous materials mineralogically similar to the reduced CV3 chondrites.

CC 53-9 (Mineralogical and Geological Chemistry)

REFERENCE COUNT: 94 THERE ARE 94 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L19 ANSWER 10 OF 27 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1998:239171 HCAPLUS

DOCUMENT NUMBER: 128:310121

TITLE: Microporous crystalline silicoaluminophosphate  
zeolites and **catalytic** materials,  
their manufacture, and their use in the  
manufacture of olefins from methanol

INVENTOR(S): Wendelbo, Rune; Akporiaye, Duncan E.;  
Andersen, Anne; Dahl, Ivar Martin; Mostad,  
Helle Brit; Fuglerud, Terje; Kvisle, Steinar  
PATENT ASSIGNEE(S): Norsk Hydro Asa, Norway; Wendelbo, Rune;  
Akporiaye, Duncan E.; Andersen, Anne; Dahl,  
Ivar Martin; Mostad, Helle Brit; Fuglerud,  
Terje; Kvisle, Steinar

SOURCE: PCT Int. Appl., 34 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

| PATENT NO.   | KIND | DATE     | APPLICATION NO. | DATE         |
|--|------|----------|-----------------|--------------|
| WO 9815496   | A1   | 19980416 | WO 1997-NO272   | 1997<br>1008 |
| W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU,<br>CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, IL, IS, JP, KE,<br>KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK,<br>MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK,<br>SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ,<br>BY, KG, KZ, MD, RU, TJ, TM<br>RW: GH, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES,<br>FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF,<br>CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG |      |          |                 |              |
| NO 9604276   | A    | 19980414 | NO 1996-4276    | 1996<br>1009 |
| NO 304108  | B1   | 19981026 |                 |              |
| CA 2268250   | AA   | 19980416 | CA 1997-2268250 | 1997<br>1008 |
| AU 9745773   | A1   | 19980505 | AU 1997-45773   | 1997<br>1008 |
| AU 714771  | B2   | 20000113 |                 |              |
| BR 9711594   | A    | 19990824 | BR 1997-11594   | 1997<br>1008 |
| EP 946412  | A1   | 19991006 | EP 1997-944230  | 1997<br>1008 |
| EP 946412  | B1   | 20020626 |                 |              |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE,<br>MC, PT, IE, FI   |      |          |                 |              |
| CN 1239930   | A    | 19991229 | CN 1997-180440  | 1997<br>1008 |
| RU 2162055   | C1   | 20010120 | RU 1999-109030  | 1997<br>1008 |
| AT 219757  | E    | 20020715 | AT 1997-944230  | 1997<br>1008 |
| ES 2179372   | T3   | 20030116 | ES 1997-944230  | 1997<br>1008 |
| US 6334994   | B1   | 20020101 | US 1999-284182  | 1999<br>0610 |
| PRIORITY APPLN. INFO.:   |      |          | NO 1996-4276    | A            |
|  |      |          |                 | 1996<br>1009 |
|  |      |          | WO 1997-NO272   | W            |
|  |      |          |                 | 1997         |

1008

AB After calcination, the **catalysts** have general formula  $H_wSi_xAl_yP_zO_2$  ( $w, x = 0.01-0.05$ ;  $y, z = 0.4-0.6$ ) and contain both an AEI and a CHA phase and have x-ray diffraction pattern as presented. The **catalysts** have longer service life than prior-art **catalyst**. In the manufacture of the **catalysts** from a mixture of sources of  $SiO_2$ ,  $Al_2O_3$ , and  $P_2O_5$  and an organic templating agent by combining at least part of the Al source and P source with water and the Si source and the templating agent, 2, but not all 3 of the following steps are included (1) addition of water,  $H_3PO_4$  and, optionally,  $HCl$ , to  $Al(Me_2CHO)_3$  on by one under agitation, (2) keeping the  $SiO_2$  content  $<5\%$ , i.e.,  $Si/(Al + P + Si) < 0.05$ , and (3) reducing the amount of liquid after addition of the  $SiO_2$  source.

IT 206555-05-7P, Aluminum oxide phosphate silicate ( $Al_0.54O_0.16(PO_4)0.41(SiO_4)0.05$ ) 206555-06-8P, Aluminum oxide phosphate silicate ( $Al_0.56O_0.22(PO_4)0.41(SiO_4)0.04$ ) 206555-07-9P, Aluminum metaphosphate oxide silicate ( $Al_0.45(PO_3)0.53O_0.33(SiO_4)0.02$ ) 206555-09-1P, Aluminum oxide phosphate silicate ( $Al_0.55O_0.13(PO_4)0.37(SiO_4)0.1$ ) (**catalyst**, manufacture of; for olefin manufacture from methanol)

RN 206555-05-7 HCAPLUS

CN Aluminum oxide phosphate silicate ( $Al_0.54O_0.16(PO_4)0.41(SiO_4)0.05$ ) (9CI) (CA INDEX NAME)

| Component | Ratio | Component<br>Registry Number |
|-----------|-------|------------------------------|
| =====     | ===== | =====                        |
| O         | 0.16  | 17778-80-2                   |
| O4Si      | 0.05  | 17181-37-2                   |
| O4P       | 0.41  | 14265-44-2                   |
| Al        | 0.54  | 7429-90-5                    |

RN 206555-06-8 HCAPLUS

CN Aluminum oxide phosphate silicate ( $Al_0.56O_0.22(PO_4)0.41(SiO_4)0.04$ ) (9CI) (CA INDEX NAME)

| Component | Ratio | Component<br>Registry Number |
|-----------|-------|------------------------------|
| =====     | ===== | =====                        |
| O         | 0.22  | 17778-80-2                   |
| O4Si      | 0.04  | 17181-37-2                   |
| O4P       | 0.41  | 14265-44-2                   |
| Al        | 0.56  | 7429-90-5                    |

RN 206555-07-9 HCAPLUS

CN Aluminum metaphosphate oxide silicate ( $Al_0.45(PO_3)0.53O_0.33(SiO_4)0.02$ ) (9CI) (CA INDEX NAME)

| Component | Ratio | Component<br>Registry Number |
|-----------|-------|------------------------------|
| =====     | ===== | =====                        |
| O         | 0.33  | 17778-80-2                   |
| O4Si      | 0.02  | 17181-37-2                   |
| O3P       | 0.53  | 15389-19-2                   |
| Al        | 0.45  | 7429-90-5                    |

RN 206555-09-1 HCAPLUS

CN Aluminum oxide phosphate silicate (Al<sub>0.55</sub>O<sub>0.13</sub>(PO<sub>4</sub>)<sub>0.37</sub>(SiO<sub>4</sub>)<sub>0.1</sub>)  
(9CI) (CA INDEX NAME)

| Component | Ratio | Component<br>Registry Number |
|-----------|-------|------------------------------|
| =====     | ===== | =====                        |
| O         | 0.13  | 17778-80-2                   |
| O4Si      | 0.1   | 17181-37-2                   |
| O4P       | 0.37  | 14265-44-2                   |
| Al        | 0.55  | 7429-90-5                    |

IC ICM C01B025-45  
ICS C01B033-26; B01J029-02; B01J020-16; B01J029-06  
CC 49-4 (Industrial Inorganic Chemicals)  
Section cross-reference(s): 45  
ST **SAPO** silicoaluminophosphate zeolite **catalyst**;  
methanol olefin zeolite **catalyst**  
IT Silicoaluminophosphate zeolites  
(**catalysts**, manufacture of; for olefin manufacture from  
methanol)  
IT Alkenes, preparation  
(manufacture of, from methanol; silicoaluminophosphate zeolite  
**catalysts** manufacture for)  
IT **206555-05-7P**, Aluminum oxide phosphate silicate  
(Al<sub>0.54</sub>O<sub>0.16</sub>(PO<sub>4</sub>)<sub>0.41</sub>(SiO<sub>4</sub>)<sub>0.05</sub>) **206555-06-8P**, Aluminum  
oxide phosphate silicate (Al<sub>0.56</sub>O<sub>0.22</sub>(PO<sub>4</sub>)<sub>0.41</sub>(SiO<sub>4</sub>)<sub>0.04</sub>)  
**206555-07-9P**, Aluminum metaphosphate oxide silicate  
(Al<sub>0.45</sub>(PO<sub>3</sub>)<sub>0.53</sub>O<sub>0.33</sub>(SiO<sub>4</sub>)<sub>0.02</sub>) **206555-09-1P**, Aluminum  
oxide phosphate silicate (Al<sub>0.55</sub>O<sub>0.13</sub>(PO<sub>4</sub>)<sub>0.37</sub>(SiO<sub>4</sub>)<sub>0.1</sub>)  
(**catalyst**, manufacture of; for olefin manufacture from  
methanol)  
IT 7631-86-9, Ludox LS, uses  
(colloidal; in **SAPO** 18 and 34 **catalyst**  
manufacture for olefin manufacture from methanol)  
IT 555-31-7, Aluminum triisopropoxide 7647-01-0, Hydrochloric acid,  
reactions 7664-38-2, Phosphoric acid, reactions  
(in **SAPO** 18 and 34 **catalyst** manufacture for  
olefin manufacture from methanol)  
IT 67-56-1, Methanol, processes  
(silicoaluminophosphate zeolite **catalysts** manufacture for  
olefin manufacture from)  
IT 77-98-5, Tetraethylammonium hydroxide  
(templating agent; in **SAPO** 18 and 34 **catalyst**  
manufacture for olefin manufacture from methanol)  
REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L19 ANSWER 11 OF 27 HCAPLUS COPYRIGHT 2005 ACS on STN  
ACCESSION NUMBER: 1998:235989 HCAPLUS  
DOCUMENT NUMBER: 128:324204  
TITLE: Biochemical evolution. I. Polymerization on  
internal, organophilic silica surfaces of  
dealuminated zeolites and feldspars  
AUTHOR(S): Smith, Joseph V.  
CORPORATE SOURCE: Department of Geophysical Sciences and Center  
for Advanced Radiation Sources, University of  
Chicago, Chicago, IL, 60637, USA  
SOURCE: Proceedings of the National Academy of  
Sciences of the United States of America

(1998), 95(7), 3370-3375  
CODEN: PNASA6; ISSN: 0027-8424  
PUBLISHER: National Academy of Sciences  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Catalysis at mineral surfaces might generate replicating biopolymers from simple chems. supplied by meteorites, volcanic gases, and photochem. gas reactions. Many ideas are implausible in detail because the proposed mineral surfaces strongly prefer water and other ionic species to organic ones. The mol. sieve silicalite (Union Carbide; = Al-free Mobil ZSM-5 zeolite) has a three-dimensional, 10-ring channel system whose elec. neutral Si-O surface strongly adsorbs organic species over water. Three -O-Si tetrahedral bonds lie in the surface, and the fourth Si-O points inwards. In contrast, the outward Si-OH of simple quartz and feldspar crystals generates their ionic organophobicity. The ZSM-5-type zeolite mutinaite occurs in Antarctica with boggsite and tschernichite (Al-analog of Mobil Beta). Archean mutinaite might have become de-aluminated toward silicalite during hot/cold/wet/dry cycles. **Catalytic activity** of silicalite increases linearly with Al-OH substitution for Si, and Al atoms tend to avoid each other. Adjacent organophilic and catalytic Al-OH regions in nanometer channels might have scavenged organic species for catalytic assembly into specific polymers **protected** from prompt photochem. destruction. Polymer migration along weathered silicic surfaces of micrometer-wide channels of feldspars might have led to assembly of replicating catalytic biomols. and perhaps primitive cellular organisms. Silica-rich volcanic glasses should have been abundant on the early Earth, ready for crystallization into zeolites and feldspars, as in present continental basins. Abundant chert from weakly metamorphosed Archean rocks might retain microscopic clues to the proposed mineral adsorbent/catalysts. Other framework silicas are possible, including ones with levo/dextro one-dimensional channels. Organic mols., transition-metal ions, and P occur inside modern feldspars.

CC 53-1 (Mineralogical and Geological Chemistry)

Section cross-reference(s): 6

REFERENCE COUNT: 167 THERE ARE 167 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L19 ANSWER 12 OF 27 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1996:427439 HCAPLUS

DOCUMENT NUMBER: 125:91727

TITLE: Mineralogy of carbonaceous chondrite clasts in HED achondrites and the Moon

AUTHOR(S): Zolensky, Michael E.; Weisberg, Michael K.; Buchanan, Paul C.; Mittlefehldt, David W.

CORPORATE SOURCE: Earth Science and Solar System Exploration Division, NASA Johnson space Center, Houston, TX, 77058, USA

SOURCE: Meteoritics & Planetary Science (1996), 31(4), 518-537

CODEN: MPSCFY; ISSN: 1086-9379

PUBLISHER: Meteoritical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The majority of the carbonaceous chondrite clasts found in

howardites, eucrites and diogenites (HED meteorites) are CM2 material, a lesser proportion is CR2 material, and other rare types are present. A single clast that was found on the Moon and called the Bench Crater meteorite is apparently shocked DM1 material. The CM2 clasts are matrix supported mixts. of olivine-pyroxene-phyllsilicate-sulfide bearing aggregates, loose olivines and pyroxenes, sulfides, carbonates, and sinuous spinel-phyllsilicate-diopside calcium-aluminum-rich inclusions (CAIs). Magnetite and metal are rare. Some aggregates have fine-grained rims of material resembling matrix. The opaque, fine-grained matrix consists predominantly of serpentine of extremely variable composition and sulfides; tochilinite is occasionally present. The trace element data for one Jodzie clast from this study and the average of similar clasts from Kapoeta support a CM classification; volatiles are depleted relative to CI and enriched relative to CR material. The CR2 clasts are found (in small nos.) in only 4 howardites: Bholghati, Jodzie, Kapoeta and Y793497. Petrog., they are matrix-supported mixts. of olivine aggregates (sometimes containing sulfides), loose olivines, pyrrhotite, pentlandite, low-Ca pyroxene (minor), hedenbergite (rare), kamacite (rare and only found within olivine), Ca-carbonates and abundant magnetite framboids and plaquets. Phyllosilicates are fine-grained and largely confined to matrix; they are mixts. of serpentine and saponite. The matrix of CR2 clasts also contains pyrrhotite, pentlandite, chromite and a significant fraction of poorly-crystalline material with the same bulk composition as matrix phyllosilicate. There is evidence of heating in a substantial number of clasts, both CM2 and CR2, including: (1) corrugated serpentine flakes, (2) pseudomorphs of anhydrous ferromagnesian material after flaky phyllosilicates, and (3) hedenbergite rims on calcite. Whereas the timing of the hedenbergite rims is debatable, the destruction of phyllosilicates clearly occurred at a late stage, plausibly during impact onto the HED asteroid(s) and Moon, and required peak heating temps. on the order of 400°. In general, CM2 material was the most common carbonaceous chondrite lithol. impacting the HED asteroids (with howardites and eucrites taken together), as it is for the Earth today. A total of 61 out of 75 carbonaceous chondrite clasts from HED meteorites belong to the CM clan, petrol. grade 2. This is also supported by published siderophile and volatile element data on howardites, eucrites and diogenites that are taken to indicate that CM-like materials were the most common impactors on the HED asteroid(s). The ratio of CR/CM clasts in HED asteroids is essentially the same as for modern falls at Earth. This may indicate that the ratio of disaggregated CM2 to CR2 asteroidal material has been approx. constant throughout the history of the Solar system. Results are also compatible with type-2 carbonaceous chondrites being equivalent to or from the same source as the material that originally accreted to form the HED asteroid.

CC 53-9 (Mineralogical and Geological Chemistry)

L19 ANSWER 13 OF 27 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1992:615850 HCAPLUS

DOCUMENT NUMBER: 117:215850

TITLE: Pillared interlayered rectorite microspheric cracking catalyst

AUTHOR(S): Guan, Jingjie; Liu, Qinglin; Yu, Zhiqing; Qi, Chunming; Min, Enze; Wang, Xieqing

CORPORATE SOURCE: Res. Inst. Pet. Process., China Petro-Chem. Corp., Beijing, Peop. Rep. China

SOURCE: Proc. Int. Conf. Pet. Refin. Petrochem.  
Process. (1991), Volume 3, 1255-61.  
Editor(s): Hou, Xianglin. Int. Acad. Publ.:  
Beijing, Peop. Rep. China.  
CODEN: 58CEA7

DOCUMENT TYPE: Conference

LANGUAGE: English

AB The catalytic activity of pillared interlayered rectorite (PIR, a novel microspheric cracking catalyst crosslinked with Al chlorohydroxide) was slightly lower than that of com. rare-earth Y zeolite (REY) catalysts however it has wide pore structure of pillared clay mol. sieves which makes it suitable for cracking heavy oil residual feedstocks. The catalyst has an excellent hydrothermal stability far superior to early pillared clay products and was even better than that of com. REY catalysts. Gas and gasoline selectivity and quality of the light cycle oil was better, but coke selectivity was lightly higher than that of com. REY catalyst. The PIR catalyst had an attrition resistant index, apparent bulk d., and particle size distribution equal to the com. microspheric REY catalysts.

CC 51-6 (Fossil Fuels, Derivatives, and Related Products)  
Section cross-reference(s): 67

L19 ANSWER 14 OF 27 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1990:521490 HCAPLUS

DOCUMENT NUMBER: 113:121490

TITLE: Larger pore molecular sieves of controlled activity

INVENTOR(S): Chu, Pochen

PATENT ASSIGNEE(S): Mobil Oil Corp., USA

SOURCE: U.S., 9 pp. Cont.-in-part of U.S. Ser. No. 179,592, abandoned.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 3

PATENT INFORMATION:

| PATENT NO.             | KIND | DATE     | APPLICATION NO. | DATE               |
|------------------------|------|----------|-----------------|--------------------|
| -----                  | ---- | -----    | -----           |                    |
| US 4912073             | A    | 19900327 | US 1988-257607  | 1988<br>1014       |
| US 5047141             | A    | 19910910 | US 1990-465840  | 1990<br>0116       |
| PRIORITY APPLN. INFO.: |      |          | US 1984-631430  | B2<br>1984<br>0716 |
|                        |      |          | US 1986-829677  | B2<br>1986<br>0214 |
|                        |      |          | US 1987-179592  | B2<br>1987<br>1007 |

US 1988-257607

A3

1988

1014

AB A method for controlling the **catalytic activity** of a composition comprising a high-SiO<sub>2</sub>-content, larger pore, crystalline mol. **sieve** selected from crystalline **zeolites**, pillared clays and silicoaluminophosphates, and characterized by a Constraint **Index** of .ltorsim.2.5, which composition contains from .apprx.0.1 to .apprx.2.5 weight% of framework B, comprises: (1) contacting the crystalline mol. **sieve** with an aqueous solution of the salt of a metal selected from Groups IVA, IB, IIB, IVB and VIII, the contacting being under conditions effective to remove B from the crystalline mol. **sieve**; and (2) converting the contacted crystalline mol. **sieve** to the H form.

IC ICM B01J021-16

ICS B01J029-06

INCL 502085000

CC 67-1 (Catalysis, Reaction Kinetics, and Inorganic Reaction Mechanisms)

L19 ANSWER 15 OF 27 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1990:518655 HCAPLUS

DOCUMENT NUMBER: 113:118655

TITLE: Aqueous alteration in the Kaba CV3 carbonaceous chondrite

AUTHOR(S): Keller, Lindsay P.; Buseck, Peter R.

CORPORATE SOURCE: Dep. Geol., Arizona State Univ., Tempe, AZ, 85287-1404, USA

SOURCE: Geochimica et Cosmochimica Acta (1990), 54(7), 2113-20

CODEN: GCACAK; ISSN: 0016-7037

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The Kaba CV3 carbonaceous chondrite has undergone pervasive aqueous alteration that produced Fe-bearing **saponite** in chondrules and matrix. **Saponite** in chondrules is coarse-grained and shows a crystallog. orientation relationship such that c\* of **saponite** parallels a\* of enstatite. Matrix **saponite** exhibits a variety of textures including coarse- and fine-grained clusters, isolated packets, and sparse, lamellar replacements of Fe-rich olivine. The coarse-grained clusters were probably derived from altered chondrules that were fragmented during regolith gardening. The fine-grained clusters and isolated packets formed from material released during the partial dissoln. of matrix silicates. Much **saponite** is associated with submicron Fe-Ni sulfides, suggesting that conditions were not oxidizing during aqueous alteration. The alteration occurred after accretion and on the Kaba parent body because **saponite** is present throughout the sample. By analogy to terrestrial occurrences, the **saponite** in Kaba probably formed at low temps. (<100°). The distribution of **saponite** in Kaba is determined by local bulk comps.; enstatite in chondrules has been altered more extensively than the fine-grained olivine in matrix. The alteration products in Kaba resemble those in other aqueously altered carbonaceous chondrites such as the Mokoia CV3 chondrite and in certain CI chondrites. There are, however, significant differences. Kaba lacks the abundant high-Al phyllosilicates in chondrules and in **CAIs** (Ca-Al-rich inclusions) reported from Mokoia; also lacking in Kaba

is the serpentine and ferrihydrite found in Orgueil. Alteration products in Kaba matrix differ from those in CO3 chondrites even though their prealteration mineralogies were similar.

CC 53-9 (Mineralogical and Geological Chemistry)

ST carbonaceous chondrite aq alteration Kaba; **saponite**  
chondrule carbonaceous chondrite Kaba

IT Meteorites

(chondrites, carbonaceous, aqueous alteration in, formation of  
**saponite** in relation to, of Kaba)

IT 1319-41-1P, **Saponite**

(formation of, by aqueous alteration, in chondrule and matrix, of  
Kaba CV3 carbonaceous chondrite)

L19 ANSWER 16 OF 27 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1988:480562 HCAPLUS

DOCUMENT NUMBER: 109:80562

TITLE: Structural, acidic and **catalytic**  
properties of **SAPO**-11 molecular  
sieves

AUTHOR(S): Khouzami, R.; Coudurier, G.; Mentzen, B. F.;  
Vedrine, J. C.

CORPORATE SOURCE: Inst. Rech. Catal., CNRS, Villeurbanne, 69622,  
Fr.

SOURCE: Studies in Surface Science and Catalysis  
(1988), 37(Innovation Zeolite Mater. Sci.),  
355-63

CODEN: SSCTDM; ISSN: 0167-2991

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Polycryst. silicoaluminophosphates of **SAPO**-11 type were  
synthesized with variable Si/(Al+P) ratios. The general  
**formula** was  $H_xSi_xAl_{20}P_{20-x}O_{80}$ , with  $x = 0-4$ . Calcination  
increased the crystallinity of the samples. The variations of the  
unit cell volume with the Si amount were too low to draw conclusions  
concerning the actual insertion of Si into the framework. Part of  
Si was located at the surface, presumably as an amorphous SiO<sub>2</sub>  
layer. The samples as observed by temperature-programmed desorption of NH<sub>3</sub>  
and pyridine adsorption exhibited a Lewis acidity of medium  
strength which resulted in poor **catalytic** properties.  
All samples were inactive in hexane cracking and active in MeOH  
conversion. They were active and relatively stable in isopropanol  
dehydration and double shift bond isomerization of 1-butene.

IT 115867-12-4, Aluminum phosphate silicate  
(Al<sub>20</sub>(PO<sub>4</sub>)<sub>16-20</sub>(HSiO<sub>4</sub>)<sub>0-4</sub>)

(**catalysts**, structure and surface acidity of,  
activity in relation to)

RN 115867-12-4 HCAPLUS

CN Aluminum phosphate silicate (Al<sub>20</sub>(PO<sub>4</sub>)<sub>16-20</sub>(HSiO<sub>4</sub>)<sub>0-4</sub>) (9CI) (CA  
INDEX NAME)

| Component         | Ratio   | Component<br>Registry Number |
|-------------------|---------|------------------------------|
| =====+=====+===== |         |                              |
| HO4Si             | 0 - 4   | 28947-70-8                   |
| O4P               | 16 - 20 | 14265-44-2                   |
| Al                | 20      | 7429-90-5                    |

CC 67-1 (Catalysis, Reaction Kinetics, and Inorganic Reaction  
Mechanisms)

Section cross-reference(s): 22

ST silicoaluminophosphate **catalyst** structure acidity  
 IT Adsorption  
     (of ammonia and pyridine, on silicaluminophosphate  
     **catalysts**, surface acidity in relation to)  
 IT Crystallinity  
     (of silicoaluminophosphate **catalysts**, effect of  
     calcination on)  
 IT **Catalysts and Catalysis**  
     (silicoaluminophosphates, structure and acidity of, activity in  
     relation to)  
 IT Heteropoly acids  
     (aluminophosphatosilicates, **catalysts**, structure and  
     acidity of, activity in relation to)  
 IT 110-54-3, Hexane, properties 110-86-1, Pyridine, properties  
     7664-41-7, Ammonia, properties 7727-37-9, Nitrogen, properties  
     (adsorption of, on silicoaluminophosphate **catalysts**,  
     surface acidity in relation to)  
 IT **115867-12-4**, Aluminum phosphate silicate  
     (Al<sub>20</sub>(PO<sub>4</sub>)<sub>16</sub>-20(HSiO<sub>4</sub>)<sub>0-4</sub>)  
     (**catalysts**, structure and surface acidity of,  
     activity in relation to)

L19 ANSWER 17 OF 27 HCAPLUS COPYRIGHT 2005 ACS on STN  
 ACCESSION NUMBER: 1987:579913 HCAPLUS  
 DOCUMENT NUMBER: 107:179913  
 TITLE: Fluid cracking catalyst and method of making  
         same  
 INVENTOR(S): Andrews, Robert W.; Himpsl, Francis L.;  
               Speronello, Barry K.  
 PATENT ASSIGNEE(S): Engelhard Corp., USA  
 SOURCE: Eur. Pat. Appl., 31 pp.  
         CODEN: EPXXDW  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 3  
 PATENT INFORMATION:

| PATENT NO.<br>-----                                   | KIND<br>---- | DATE<br>----- | APPLICATION NO.<br>----- | DATE              |
|---|--------------|---------------|--------------------------|-------------------|
| EP 234120   | A1           | 19870902      | EP 1986-309994           | 1986<br>1222      |
| EP 234120   | B1           | 19891025      |                          |                   |
| R: AT, BE, CH, DE, ES, FR, GB, GR, IT, LI, LU, NL, SE |              |               |                          |                   |
| US 4699893  | A            | 19871013      | US 1985-811201           | 1985<br>1220      |
| CA 1273330  | A1           | 19900828      | CA 1986-525425           | 1986<br>1216      |
| JP 62191047   | A2           | 19870821      | JP 1986-303615           | 1986<br>1219      |
| AT 47536  | E            | 19891115      | AT 1986-309994           | 1986<br>1222      |
| PRIORITY APPLN. INFO.:                                |              |               | US 1985-811201           | A<br>1985<br>1220 |

|                |    |              |
|----------------|----|--------------|
| US 1983-532346 | A2 | 1983<br>0915 |
| US 1985-727985 | A2 | 1985<br>0429 |
| EP 1986-309994 | A  | 1986<br>1222 |

AB Mixts. of Na silicate and Na **zeolite** crystals are ion exchanged with  $\text{NH}_4^+$  solns. at initial pH 4.5-5.0 followed by ion exchange at pH 2.0-3.5. The process is especially suitable for preparation of NaY (**zeolite**)-based petroleum cracking catalysts. Na **zeolite**-Na silicate microspheres, containing 18.2 weight%  $\text{Na}_2\text{O}$ , were contacted twice (for 1 h each at  $82^\circ$ ) with aqueous  $\text{NH}_4\text{NO}_3$  at pH 4.5-5.0 (adjusted by concentrated  $\text{HNO}_3$ ) and then 3 times (for 1 h each at  $82^\circ$ ) at pH 2.4-2.7. The catalyst was impregnated with aqueous rare earth oxide ( $\text{ReO}$ ) at  $82^\circ$  and pH 3.0-3.5 for 1 h. The final catalyst, containing 0.35 weight%  $\text{Na}_2\text{O}$  and 2.94 weight%  $\text{ReO}$ , had an RMA catalyst activity index of 102 (relative to standard HEZ 53 com. catalyst), vs. 77 for a catalyst prepared by cation exchange at pH 2.4-2.7 only.

IC ICM B01J029-06

ICS C10G011-05

ICA B01J029-08; B01J037-30

CC 51-6 (Fossil Fuels, Derivatives, and Related Products)

ST petroleum cracking catalyst cation exchange; pH control ammonium exchange **zeolite**; **zeolite** petroleum cracking cation exchange

IT Cation exchange

(of sodium oxide-sodium **zeolite** mixts., with ammonium, pH control in, for preparation of petroleum cracking catalysts)

IT **Zeolites**, uses and miscellaneous

(NaY, ammonium-exchanged, pH control in, for preparation of petroleum cracking catalysts)

IT Petroleum refining catalysts

(cracking, ammonium-exchanged **zeolite**-silicate mixts., preparation of, pH control in)

IT 1313-59-3, Sodium oxide ( $\text{Na}_2\text{O}$ ), uses and miscellaneous

(cation exchange and removal of, in preparation of **zeolite** petroleum cracking catalysts)

IT 6484-52-2, Ammonium nitrate, properties

(cation exchange with, for preparation of **zeolite** petroleum cracking catalysts)

IT 1335-30-4

(**zeolites**, NaY, ammonium-exchanged, pH control in, for preparation of petroleum cracking catalysts)

L19 ANSWER 18 OF 27 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1987:198693 HCAPLUS

DOCUMENT NUMBER: 106:198693

TITLE: Crystalline silicophosphoaluminate from a two phase medium

INVENTOR(S): Derouane, Eric G.; Von Ballmoos, Roland

PATENT ASSIGNEE(S): Mobil Oil Corp., USA

SOURCE: U.S., 9 pp. Cont.-in-part of U. S. Ser. No.  
562,778, abandoned.  
CODEN: USXXAM  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

| PATENT NO. | KIND | DATE     | APPLICATION NO. | DATE         |
|------------|------|----------|-----------------|--------------|
| US 4647442 | A    | 19870303 | US 1984-642966  | 1984<br>0821 |

PRIORITY APPLN. INFO.: US 1983-562778 A2  
1983  
1219

OTHER SOURCE(S): CASREACT 106:198693

AB Crystalline silicoaluminophosphate mol. **sieve** material (designated MCM-2, structurally analogous to the **zeolite** chabazite) is prepared solvothermally from a 2-phase reaction mixture consisting of an organic phase immiscible with water and containing a Si source, an aqueous phase containing dissolved or partially dissolved Al phosphate (type AlPO<sub>4</sub>-5), and a Et<sub>4</sub>N<sup>+</sup> directing agent. The reaction mixture is maintained at crystallization conditions until the product forms, and the product is separated. These materials are characterized by a given x-ray diffraction (XRD) pattern and show a variety of interesting catalytic properties. A reaction mixture was prepared with an organic phase consisting of hexanol 60 and Si(OEt)<sub>4</sub> 10 g, and an aqueous phase of 85% H<sub>3</sub>PO<sub>4</sub> 23.1, Al<sub>2</sub>O<sub>3</sub> 10, 25% Pr<sub>4</sub>NOH 84, and water 30 g, for an overall composition Si 10.8, P 45.0, and Al 44.2 atomic%. The mixture was heated at 50°/h to 150° and maintained at that temperature for 168 h, after which the crystalline product was separated, washed, and dried. The product contained Si 17.5, P 37.2, and Al 45.4 atomic%, had an XRD pattern typical of MCM-2, Alpha value (**catalytic cracking activity index**) 7.0, **constraint index** >100 (i.e. small pore size), and was an active catalyst for, e.g., alkylation of toluene.

IC ICM C01B015-16

ICS C01B033-28

INCL 423306000

CC 49-4 (Industrial Inorganic Chemicals)  
Section cross-reference(s): 45, 51, 67

L19 ANSWER 19 OF 27 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1984:607603 HCAPLUS

DOCUMENT NUMBER: 101:207603

TITLE: Chemical constituents of Japanese ginseng (Panax japonicus). (II)

AUTHOR(S): Cai, Ping; Xia, Zhuoyin

CORPORATE SOURCE: Dep. Pharm., Sichuan Med. Coll., Chengdu, Peop. Rep. China

SOURCE: Zhongcaoyao (1984), 15(6), 241-6  
CODEN: CTYAD8; ISSN: 0253-2670

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

AB Four **saponin** constituents, designated as Pjs-2, -3, -4, and -6, were isolated from the root of Japanese ginseng (P.

japonicus) according to the method of P. Cai et al. (1982). Spectral anal. (IR, NMR, and mass spectroscopy) and physicochem. consts. determination identified Pjs-2 as 3-O-( $\beta$ -D-xylopyranosyl(1 $\rightarrow$ 2)- $\beta$ -D-glucuronopyranosyl)oleanolate 28-O- $\beta$ -D-glucopyranoside, Pjs-3 as chikusetsusaponin IV (or araloside A), Pjs-4 as 3-O-( $\alpha$ -L-arabinopyranosyl)oleanolate 28-O- $\beta$ -D-glucopyranoside, and Pjs-6 as ginsenoside Re.

CC 11-1 (Plant Biochemistry)  
ST ginseng **saponin** compn; chikusetsusaponin IV ginseng;  
ginsenoside Re ginseng  
IT **Saponins**  
(from Japanese ginseng root)  
IT Ginseng  
(P. japonicus, **saponins** from root of)

L19 ANSWER 20 OF 27 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1982:608108 HCAPLUS

DOCUMENT NUMBER: 97:208108

TITLE: Effect of Daisaikotoh (Da-Cai-Hu Tang) and saikosaponins on experimental hyperlipemia

AUTHOR(S): Saitoh, Takashi

CORPORATE SOURCE: Dep. Pharmacol., Tokyo Med. Coll., Tokyo, Japan

SOURCE: Tokyo Ika Daigaku Zasshi (1982), 40(4), 517-29  
CODEN: TIDZAH; ISSN: 0040-8905

DOCUMENT TYPE: Journal

LANGUAGE: Japanese

AB The mechanism of action of Daisaikotoh (Da Cai-Hu Tang), a Chinese herbal **formulation**, in the treatment of cholelithiasis and obesity was studied. Exptl. cholelithiasis and hyperlipemia were produced in male hamsters by administration of cholesterol lithogenic diets continuously for 27 days. Daisaikotoh was administered orally to some of them at the same time. Data from this experiment showed that Daisaikotoh tends to inhibit the formation of gallstones and the increase of serum triglyceride and cholesterol induced by lithogenic diets. **Saponin** and nonsaponin fractions extracted from Bupleuri radix (a component of Daisaikotoh) were administered to mice orally 30 min before the oral administration of [1-<sup>14</sup>C]-triolein, and the accumulated blood levels of <sup>14</sup>C radioactivity was counted at regular intervals. The exptl. data showed that saikosaponins inhibit, but that the nonsaponin fraction does not inhibit triglyceride absorption. Oral administration of butter also increased the serum triglyceride levels in rats; i.v. administration of saikosaponins inhibited the increase of serum triglyceride levels in rats during butter treatment. This was mainly due to an inhibition of increases in the level of chylomicron. In addition, the increases of free fatty acid and post heparin lipolytic activity levels were inhibited by the saikosaponins. Apparently, saikosaponins inhibit the absorption of triglyceride from the digestive tract, but do not accelerate subsequent triglyceride metabolism

CC 1-10 (Pharmacology)

IT **Saponins**  
(saiko-, biliary calculi-inhibiting and hypolipemic activity of, mechanism of)

L19 ANSWER 21 OF 27 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1975:482147 HCAPLUS  
 DOCUMENT NUMBER: 83:82147  
 TITLE: Preparation of NaA zeolite from kaolin from the Taphinh (Lao cai) region  
 AUTHOR(S): Nguyen Duc Chau; Nguyen Ba Xuan; Le Nhu Thanh  
 CORPORATE SOURCE: Phong Hoa Ly, Vien Hoa Hoc Cong Nghiep, N. Vietnam  
 SOURCE: Tap San Hoa Hoc (1974), 12(4), 3-6  
 CODEN: HOAGAP; ISSN: 0439-2922  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Vietnamese  
 AB Title only translated.  
 CC 49-4 (Industrial Inorganic Chemicals)  
 ST zeolite prepn kaolin  
 IT Zeolites  
 (NaA, preparation of, from kaolin from North Vietnam)  
 IT Kaolin, uses and miscellaneous  
 (zeolite NaA from, from North Vietnam)

L19 ANSWER 22 OF 27 HCAPLUS COPYRIGHT 2005 ACS on STN  
 ACCESSION NUMBER: 1968:97301 HCAPLUS  
 DOCUMENT NUMBER: 68:97301  
 TITLE: Silica-alumina cracking catalysts  
 PATENT ASSIGNEE(S): W. R. Grace and Co.  
 SOURCE: Brit., 5 pp.  
 CODEN: BRXXAA  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

| PATENT NO.             | KIND | DATE     | APPLICATION NO. | DATE |
|------------------------|------|----------|-----------------|------|
| GB 1085758             |      | 19671004 | GB              |      |
| DE 1542194             |      |          | DE              |      |
| FR 1508030             |      |          | FR              |      |
| US 3423332             |      | 19690000 | US              |      |
| PRIORITY APPLN. INFO.: |      |          | US              |      |
|                        |      |          |                 | 1963 |
|                        |      |          |                 | 1213 |

AB Addition of mol. sieves (zeolites) to SiO<sub>2</sub>Al<sub>2</sub>O<sub>3</sub> catalysts improves both activity and stability. The catalyst containing 5-45 weight % Al<sub>2</sub>O<sub>3</sub> is heated to 30-100° in the presence of an alkali metal hydroxide (preferably Na or K) or N base to introduce tetrahedral units into the amorphous aluminosilicate. The N base may be pyridine, piperidine, tetramethylammonium hydroxide or tetrabutylammonium hydroxide. Excess alkali is removed by ion exchange and excess base is removed by heating at 300-1500°. Thus, 236.6 g. SiO<sub>2</sub>Al<sub>2</sub>O<sub>3</sub> cracking catalyst containing 13% active Al<sub>2</sub>O<sub>3</sub> was added to a solution of 21.7 g. NaOH in 696 g. H<sub>2</sub>O. The temperature was raised to 40° and kept there for 18 hrs. The catalyst precursor was filtered, washed, and dried at 110° for 18 hrs. The empirical formula was 0.83Na<sub>2</sub>O.1.0Al<sub>2</sub>O<sub>3</sub>.10.9SiO<sub>2</sub>.xH<sub>2</sub>O. The catalyst was washed sparingly with H<sub>2</sub>O and then base-exchanged 3 times at 50° with .apprx.4.8 weight % NH<sub>4</sub>Cl solution After washing with water, the catalyst was dried at 110°. The finished

catalyst had a surface area of 441 m.<sup>2</sup>/g. and a pore volume of 0.60 cc./g., both determined by the B.E.T. method.

IC B01J

CC 51 (Petroleum, Petroleum Derivatives, and Related Products)

L19 ANSWER 23 OF 27 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1968:61301 HCAPLUS

DOCUMENT NUMBER: 68:61301

TITLE: Diesel oil deparaffination by means of synthetic zeolites with molecular sieve properties of the 5A type

AUTHOR(S): Tunescu, R. C.; Caras, R.

SOURCE: Petrol si Gaze (1967), 18(5), 284-7

CODEN: PGAZAC; ISSN: 0031-6350

DOCUMENT TYPE: Journal

LANGUAGE: Romanian

AB A gas oil (freezing point 4°, n<sub>20</sub>D 1.4742, Q<sub>204</sub> 0.847, I.D. (diesel index) 57) was deparaffinized by 2 methods: I adsorption of the n-paraffinic hydrocarbons on synthetic zeolites with properties of 5 A. mol. sieves and II selective catalysis, in which the n-paraffinic hydrocarbons were decomposed into gases, using the same zeolites as catalysts. In both cases the freezing (congealing) point was lowered by .apprx.35°. Zeolite (0.5-0.8 mm.) (45 g.) was introduced, activating by passing N for 3 hrs. at 350°, and absorbing from the liquid passed at a volumetric rate of 1/hr., at 150°. Passing 1 volume gas oil upon 2 weight parts of zeolite, the freezing point was reduced by 27° and the I.D. remained at an acceptable value, the n-paraffin content decreasing by 8 units. Selective catalysis (because of the small pore size, only n-paraffins penetrated and were cracked to gases) was effected on a fixed bed of zeolite (100 g.) in the shape of cylindric pellets (5 + 3 mm. diameter) passing the gas oil at 425-500°, at 0.5 g./g. hr. At one temperature (475°) a polar substance, (NH<sub>3</sub>), was added. The catalyst was activated in a N current at 400°. The fractions obtained were analyzed for S content, I.D., freezing point, n<sub>2</sub>D; the amount of resulting light fraction and the coke produced were also measured. The decrease of the freezing point was proportional to the temperature, a decrease of 35° being attained at 450°. The n<sub>2</sub>D of the fractions was a satisfactory criterion for the determination of the moment of catalyst deactivation by deposition of coke. The presence of NH<sub>3</sub> reduced temporarily the catalytic activity. The analyses showed a higher content of H<sub>2</sub>, CH<sub>4</sub>, C<sub>2</sub>H<sub>6</sub>, C<sub>2</sub>H<sub>4</sub>, C<sub>3</sub>H<sub>6</sub>, and C<sub>4</sub>H<sub>8</sub>, and a lower iso-C<sub>4</sub>H<sub>10</sub> content as compared to the products of catalytic cracking effected with normal aluminosilicates; this was attributed to the continued decomposition of the branched structure hydrocarbons formed in the 11 A. channels of the catalyst. The degree of desulfurization was maximum at 475° (at which temperature the I.D. was still satisfactory), and was partial only, since only normal structure S compds. were transformed. The amount of liquid fraction formed (200° final) was only <4%, contrary to normal catalytic cracking, indicating preferential gas formation.

CC 51 (Petroleum, Petroleum Derivatives, and Related Products)

L19 ANSWER 24 OF 27 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1967:87343 HCAPLUS

DOCUMENT NUMBER: 66:87343

TITLE: Cracking catalysts of amorphous silica and  
alumina gels mixed with molecular sieves  
PATENT ASSIGNEE(S): Esso Research and Engineering Co.  
SOURCE: Neth. Appl., 26 pp.  
CODEN: NAXXAN  
DOCUMENT TYPE: Patent  
LANGUAGE: Dutch  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

| PATENT NO.             | KIND | DATE     | APPLICATION NO. | DATE |
|------------------------|------|----------|-----------------|------|
| NL 6606201             |      | 19661107 |                 |      |
| DE 1545283             |      |          | DE              |      |
| FR 1553673             |      |          | FR              |      |
| US 3558476             |      | 19710000 | US              |      |
| PRIORITY APPLN. INFO.: |      |          | US              |      |
|                        |      |          |                 | 1965 |
|                        |      |          |                 | 0506 |

AB The expensive mol. **sieve** catalyst can be partially replaced by the conventional amorphous catalyst of Al<sub>2</sub>O<sub>3</sub>-SiO<sub>2</sub> gel. The amorphous catalyst contains 13% Al<sub>2</sub>O<sub>3</sub> and 87% SiO<sub>2</sub>. The mol. **sieve** catalyst is a crystalline **zeolite** having pore size of 7-13 A., and the chemical **formula** 0.9 ± 0.2M<sub>2</sub>O.Al<sub>2</sub>O<sub>3</sub>.xSiO<sub>2</sub>, in which M is H or a metal and x is 3-7. A SiO<sub>2</sub>/Al<sub>2</sub>O<sub>3</sub> ratio >3:1 in the phys. mixture is preferable for selective, stable, and improved **activity** of the **catalyst**. Cation exchange (before or after mixing the Al<sub>2</sub>O<sub>3</sub>-SiO<sub>2</sub> with the **zeolite**) is required to decrease the alkali metal oxides to <10%. The ratio of gel to **zeolite** generally is 30-90:10-70 weight %. The cracking temperature is 370-650°; the pressure, a few hundred atmospheric. Fluidization of the catalyst is preferred. The catalyst/oil ratio is 5:1. All kinds of fuel oils, middle distillates, steam-cracked naphthas, etc., can be treated.

IC B01J

CC 51 (Petroleum, Petroleum Derivatives, and Related Products)

L19 ANSWER 25 OF 27 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1966:74964 HCAPLUS  
DOCUMENT NUMBER: 64:74964  
ORIGINAL REFERENCE NO.: 64:14001a-c  
TITLE: Isomerization of paraffinic hydrocarbons  
INVENTOR(S): Rabo, Jule A.; Pickert, Paul E.; Boyle, James E.  
PATENT ASSIGNEE(S): Union Carbide Corp.  
SOURCE: 14 pp.  
DOCUMENT TYPE: Patent  
LANGUAGE: Unavailable  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

| PATENT NO.             | KIND | DATE     | APPLICATION NO. | DATE |
|------------------------|------|----------|-----------------|------|
| DE 1207034             |      | 19651216 | DE              |      |
| PRIORITY APPLN. INFO.: |      |          | US              |      |
|                        |      |          |                 | 1959 |

1230

AB Conversion of hydrocarbons, especially paraffinic hydrocarbons, such as C<sub>5</sub>H<sub>12</sub> and C<sub>6</sub>H<sub>14</sub>, to branched-chain hydrocarbons, is accomplished by passing the hydrocarbons into a stream of H under proper conversion conditions and then bringing the stream into contact with a crystalline metal Al silicate **zeolite** mol. **sieve**. This mol. **sieve** is termed "Zeolith Y" and has the formula  $0.9 \pm 0.2\text{Na}_{20}\text{Al}_{203}\cdot w\text{SiO}_2\cdot x\text{H}_2\text{O}$ , in which w is 3-6 and x is 1-9 (Ger 1,098,929, CA 56, 6692c; Ger. 1,164,384, CA 62, 3689c). As a catalyst, a polyvalent cation of a Group VIII metal, such as Pt or Pd, is used. The **catalytic activity** of the mol. **sieve** depends on pore size, crystal structure, silicic acid/ Al<sub>2</sub>O<sub>3</sub> ratio, and the type of cation in the structure. Since the pores must be large enough to allow the entrance of the mols. of initial reactants and the products, but small enough to restrain the entrance of larger mols., a pore size of 3-10 Å. is most desirable. The crystalline **zeolites** have a much higher **catalytic activity** than noncryst. **zeolites** of the same content of chemicals. A SiO<sub>2</sub>-Al<sub>2</sub>O<sub>3</sub> mole ratio of >3:1 is desirable for this process. The process is carried out at 300-420°, the temperature level being critical and dependent on the raw material used. The H/hydrocarbon mole ratio is preferably 2-5:1. The pressure used is preferably 21-41 atmospheric. Straight-run fractions consisting solely of C<sub>5</sub>H<sub>12</sub>, C<sub>6</sub>H<sub>14</sub>, or appreciable amts. of ring compds. with side chains can be converted by this process. The products are useful as gasoline components.

IC C10G

CC 27 (Petroleum and Petroleum Derivatives)

L19 ANSWER 26 OF 27 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1965:452498 HCAPLUS  
 DOCUMENT NUMBER: 63:52498  
 ORIGINAL REFERENCE NO.: 63:9512c-h  
 TITLE: Preparation of improved zeolites  
 PATENT ASSIGNEE(S): Esso Research and Engineering Co., Neth.  
 SOURCE: 18 pp.  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Unavailable  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

| PATENT NO.             | KIND | DATE     | APPLICATION NO. | DATE |
|------------------------|------|----------|-----------------|------|
| -----                  | ---- | -----    | -----           |      |
| NL 294141              |      | 19650412 | NL              |      |
| PRIORITY APPLN. INFO.: |      |          | US              |      |
|                        |      |          |                 | 1962 |
|                        |      |          |                 | 0706 |

AB By use of finely divided crystalline aluminosilicate **zeolite** as the bonding agent for coarser particles of **zeolite**, it is possible to obtain "extrudate", pellets, or fluidized powder with increased rate of adsorption, greater adsorption capacity, and higher **catalytic activity**. The general formula for the **zeolites** is  $y\text{M}_2/n\text{O}\cdot\text{Al}_{203}\cdot x\text{SiO}_2$ , where M represents a metal or H, n the valence of M,  $0.7 \leq y < 1.1$ , and  $2 < x < 12$ . Starting material may be com. available

**zeolites** (e.g., Linde Types 4A, 5A, 13X, 13Y) or synthetic **zeolites** prepared as follows: a mixture of colloidal silica (e.g., Ludox), NaOH, and Na aluminate after standing for about 24 hrs. is heated to 92-105° for 50-100 hrs. The crystalline product is separated from the mother liquor by decantation, then washed giving a crystalline material with av. particle size from 1 to 10  $\mu$ . In the reaction mixture the Na<sub>2</sub>O/SiO<sub>2</sub> ratio for Types 4A, 5A, and 13X should be 0.7-1.5; for Type 13Y 0.28-0.45; SiO<sub>2</sub>/Al<sub>2</sub>O<sub>3</sub> for Types 4A-5A should be 1.5-2.5; for Type 13X 2.5-5; and for Type 13Y 10-30. In the crystalline product the SiO<sub>2</sub>/Al<sub>2</sub>O<sub>3</sub> value for Types 4A-5A is 1-2.2; for Type 13X 2-3; and for Type 13Y 5-6. The relatively coarse particles are reduced to fine powder (from 0.3 to less than 0.05  $\mu$ ) in a ball mill or are "micronized" in a "Vibro-Energy Mill." The fine suspension of **zeolite** is spray dried at 99-260° or treated with hot oil (e.g., Nujol) or petroleum fraction giving minute, spherical particles which may be centrifuged or filtered out. The aqueous suspension may be mixed with coarser **zeolite** (particle  $\mu$  size 1-300  $\mu$ ) before extruding or drying at 370 to 595°. Preferably 15% or more of the finely divided **zeolite** serves as binding agent for the coarser particles. For catalytic use, it is important that the Na<sub>2</sub>O content be 2-6%. The ion exchange is done at 15-70°. The product may contain 3-20% of the catalytic cation. For comparative testing 4 extrudates were prepared as follows: (E1) A mixture of 100 g. Type 5A **zeolite** with 226 g. of slurry produced from Type 5A is extruded in a laboratory press at 700-1260 kg./cm.<sup>2</sup> through an opening 1.5 mm. in diameter. The extrudate is dried by heating to 540°. (E2) The slurry of finely divided Type 5A **zeolite** is dried, and 110 g. of the fraction which passes through a 50-mesh sieve is mixed with 150 g. of the original slurry. The mixture is dried and extruded as above. (E3) For an "ordinary" extrudate, 85 g. of Type 5A powder is mixed with 15 g. of bentonite and 60 g. of distilled H<sub>2</sub>O; the mixture is extruded and dried at 540°. (E4) Com. available extrudate of Type 5A **zeolite**, also heated to 540°, is used. By use of n-heptane for adsorption studies, the isotherms show that E1 and E2 have a greater adsorption capacity than E4 by 5-10% (which is attributed to the fact that E1 and E2 do not have foreign material present as bonding agent). At low pressure of n-heptane, E1 and E2 show faster adsorption than E4. In terms of pellet strength, E2 is measured at 0.9 kg. as compared with 1.35 kg. for E3 (which is considered adequate). To show that the absence of foreign bonding materials may avoid unwanted side reactions, 5-g. samples of the extrudates were exposed to propene for 2 hrs. at 121° and 1 atmospheric pressure (gas velocity about 15 l./hr.); then to a stream of N (30 l./hr.) for 30 min. Analysis showed residual C content of E2 0.3, E3 0.9, and E4 0.6%.

IC C01B

CC 17 (Industrial Inorganic Chemicals)

L19 ANSWER 27 OF 27 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1915:4817 HCAPLUS

DOCUMENT NUMBER: 9:4817

ORIGINAL REFERENCE NO.: 9:728a-c

TITLE: Oil-producing plants

AUTHOR(S): Voight

SOURCE: Chemische Revue ueber die Fett- und Harz-Industrie (1914), 21, 117-9; also in Ann. Rept. Inst. Appl. Bot. Hamburg

CODEN: CRFHAJ; ISSN: 0366-7960

DOCUMENT TYPE:

Journal

LANGUAGE:

Unavailable

AB Mowrah or Illipe nuts have for several years been imported from East India, mainly the kernels of Illipe latifolia whose fat is recently said to be used for edible purposes. Its cake is not used as feeding stuff on account of high **saponin** content with strong hemolytic action. The hulled kernels of Aleurites triloba are apparently regularly imported under the name of candle or Bankul nuts (Br. India), Kemiri nuts (Java), Lumbang nuts (Philippines), Hot **cai lai** (Cochinchina) and Lama nuts (Samoa). Nhulo fruit (from Portuguese, W. Africa) contains relatively little oil and its kernels are difficult to remove. A thin-shelled variety of the oil palm are the Lisombe kernels (kamerun, Africa). Among American oil fruits, Attalea cohune is most promising. Manketti oil cake contains: 8.2 H<sub>2</sub>O, 2.6 ash, 6.2 protein, 1.85 fat, 46.85 carbohydrates, 34.3% crude fiber.

CC 27 (Fats, Fatty Oils, and Soap)